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MONTANA

Absarokee to Columbus
Draft
Environmental Impact Statement

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DRAFT ENVIRONMENTAL IMPACT STATEMENT for
F 78-2(5)27
Montana P-78: Absarokee to Columbus
(P.M.S. Control #0920) in
Stillwater County, Montana

This document is prepared in conformance with the Montana Environmental Policy Act (MEPA) requirements and contains the information required for an environmental impact statement under the provisions of ARM 18.2.237(2) and 18.2.243. It is also prepared in conformance with National Environmental Policy Act (NEPA) requirements for an environmental impact statement under 23 CFR 771.123, and Section 4(f) of the 1966 U.S. Department of Transportation Act under 23 CFR 771.135. Submitted pursuant to 42 U.S.C. 4332(2)(c), 49 U.S.C. 303, Sections 75-1-201 & 2-3-104, M.C.A., and Executive Orders 11990, 11988, and 12898, by the

U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION

MONTANA DEPARTMENT OF TRANSPORTATION

and the following Cooperating Agencies

U.S. Environmental Protection Agency
U.S. Army Corps of Engineers
Montana Fish, Wildlife, and Parks
Montana Department of Natural Resources and Conservation
Montana Department of Environmental Quality

4/10/01
Date of Approval

Joel M.
Joel M. Marshik, P.E.
Montana Department of Transportation

4/10/01
Date of Approval

Dale W. Paulson
Federal Highway Administration

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ABSTRACT: The proposed action is the reconstruction, widening, and realignment of a 25.7 km (16.0 mi) segment of Montana P-78 from its junction with S-419 to the Yellowstone River bridge south of Columbus in Stillwater County. The improvements are proposed to provide a facility that meets current design standards in order to enhance the safety and operation of the facility. The project would widen the route to include paved shoulders and would correct horizontal and vertical curve deficiencies identified throughout the corridor. Several alignment alternatives were analyzed in the area between Shane Creek and the Yellowstone River bridge (Nellie's Corner), and two roadway cross sections were assessed — 9.6 m (32 ft) and 10.8 m (36 ft). The Preferred Alternative (Alternative B1) would incorporate the alignment alternative identified for a 9.6 m (32 ft) paved roadway width.

Comments on this draft environmental impact statement are due by Monday, **June 11, 2001,** and should be sent to Mr. Joel M. Marshik at the address shown above.

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EXECUTIVE SUMMARY

INTRODUCTION

This *Draft Environmental Impact Statement* (DEIS) has been prepared for the portion of Montana State Primary Route 78 (P-78) from the intersection of State Secondary Route 419 (S-419) south of Absarokee to the Yellowstone River bridge south of Columbus. The proposed action is to reconstruct the highway to current Montana Department of Transportation (MDT) highway standards, which would improve safety conditions and travel efficiency for roadway users.

This document identifies potential environmental and social/economic impacts that would result from construction and implementation of the proposed project. Mitigation measures to address potential adverse impacts are also cited. "Part I: Draft Environmental Impact Statement" has been prepared in accordance with the National Environmental Policy Act process for federally funded projects (42 U.S.C. 4321 et seq.), and "Part II: Section 4(f) Statement" meets the requirements of the Department of Transportation Act of 1966 (49 U.S.C. 303).

Project Description

MDT is proposing to reconstruct P-78 from the junction with S-419 (just south of Absarokee) to the southern end of the Yellowstone River bridge (just south of Columbus). Included in the reconstruction would be the replacement of existing bridges, culverts, and a stockpass. The existing facility is a narrow and winding route originally constructed in 1935; it received its last major geometric improvement in 1945, and a surface overlay was completed in 1994.

The project is located in Stillwater County in south-central Montana, southwest of Billings. The existing alignment is generally parallel and east of the Stillwater River. The project area is characterized by rural residential uses and prime agricultural land with gently rolling topography. See Figure 1-2 for a map of the project corridor.

The project area is approximately 25.7 kilometers (km) (16.0± miles [mi]) long, extending from about 3.4 km (2.1± mi) south of Absarokee (reference post [RP] 30.0) and terminating at the southern end of the Yellowstone River bridge (RP 46.0) immediately south of Columbus.

The driving surface does not meet MDT standards for a rural minor arterial for either width or physical condition. The roadway has no shoulders, and it has a deteriorating surface and subgrade. Along most of the corridor the roadway is about 6.7 m (22 ft) wide; at some places it narrows to only about 5.8 m (19 ft).

P-78 connects the towns of Absarokee and Columbus and provides access to I-90, the main east-west interstate in Montana. P-78 also connects the town of Red Lodge (the county seat of Carbon County) to Columbus (the county seat of Stillwater County). The MDT Functional Classification System designates P-78 as a minor arterial. Through the town of Absarokee, P-78 serves as the main street (Woodard Avenue). P-78 is an important element in contributing to the economic health of the agricultural and mining industries, as well as recreational activities in the area.

The proposed project, which would be built sometime after 2003, has been identified in Montana's 1999-2001 State Transportation Implementation Program (STIP) for roadway reconstruction and replacement of structures.

Project History

This project was initially proposed by the Montana Department of Highways (now MDT) in late 1984. A public information meeting was held in Absarokee on March 23, 1989. A *Draft Environmental Assessment / Section 4(f) Statement* on the proposed project was prepared and approved for distribution in July 1989 by the Federal Highway Administration (FHWA), and a formal public hearing was held in Absarokee on September 28, 1989.

In 1990 and 1991 issues were raised by property owners and organized interest groups concerning the proposed alignment design, impacts to historic properties (primarily irrigation ditches), farmland impacts, and the current accident history of the existing route. As a result, it was decided to prepare an environmental impact statement, which provides a more detailed evaluation and public involvement process than that required for an environmental assessment. A notice of intent to prepare an environmental impact statement was filed in the *Federal Register* on January 7, 1993 (58 FR 3063). Subsequently, it was decided to shorten the project by approximately 4.0 km (2.5± mi) to the S-419 junction, and a revised notice was printed on August 31, 1998. The new southern project limit at S-419 represents a logical terminus from a traffic standpoint. S-419 was improved to the intersection with P-78 in 1998. The dominant movement at this junction is from eastbound S-419 to northbound P-78, and southbound P-78 to westbound S-419, thus traffic volumes on P-78 decrease south of the S-419 junction.

ALTERNATIVES

The alternatives evaluated in "Part I: Draft Environmental Impact Statement" include an alternative to take no action (the No-Build Alternative), plus alternatives that would upgrade or reconstruct the existing roadway as either a 9.6 m (32 ft) typical rural cross section or as a 10.8 m (36 ft) rural cross section. For each of these cross sections, three alignment alternatives are considered — A1, B1, and D1 for the 9.6 m (32 ft) cross section, and A2, B2, and D2 for the 10.8 m (36 ft) cross section. (Alternative alignments C and E were considered, but previously eliminated from detailed evaluation; see page 29). A climbing lane is included under all the Build Alternatives for this project. A climbing lane along the incline south of Absarokee would allow faster moving vehicles an opportunity to pass slower moving vehicles climbing this hill. The Build Alternatives would best satisfy the purpose of and need for the project by addressing safety concerns, improving roadway capacity, and increasing highway efficiency, while providing a design that would be sensitive to the built and natural environments within the corridor. MDT has proposed Alternative B1 with a 9.6 m (32 ft) cross section as its Preferred Alternative. The final selection of an alternative will not be made until public comments on this draft document have been fully evaluated and responded to in a final document.

No-Build Alternative

The No-Build Alternative would provide no design, capacity, or safety improvements to the existing P-78 alignment from S-419 to the Yellowstone River bridge. The driving surface does not meet MDT standards for a rural minor arterial for either width or physical condition. The roadway has no shoulders, and it has a deteriorating surface and subgrade. The roadway width along most of the corridor is about 6.7 m (22 ft); at some places it narrows to only about 5.8 m (19 ft).

It is assumed that maintenance of the existing facility would continue. Because the No-Build Alternative would not meet the purpose of and need for the project, it is not a preferred alternative; rather, it is used as a baseline for comparing the impacts of the Build Alternatives.

Build Alternatives — 9.6 m (32 ft) Cross Section

This cross section would consist of two 3.6 m (12 ft) travel lanes plus 1.6 m (4 ft) shoulders. This typical section represents MDT's standard minimum width for a rural primary roadway, considering current and projected travel volumes on P-78 and balancing factors such as capacity, cost, and safety.

Alternative A1. For this alternative the road cross section would be 9.6 m (32 ft) from S-419 to a climbing lane south of Absarokee, and north from Absarokee to the Yellowstone River bridge. The road segment north from S-419 to Shane Creek (just south of Nellie's Corner) would require numerous changes to the vertical and horizontal alignments, but the new alignment would follow the existing alignment to the greatest extent possible.

A new climbing lane along the incline south of Absarokee would allow faster moving vehicles an opportunity to pass slower moving vehicles climbing this hill. The climbing lane for southbound traffic south of Absarokee would be 3.6 m (12 ft) wide, resulting in a total paved road width of 13.2 m (44 ft) for a length of 1.5 km (0.9 mi). In the town of Absarokee two different cross sections would be constructed. On the south side of town a transition section with a sidewalk east of the alignment would be built, and through town an urban typical section (including curb and gutter, parking lanes, and sidewalks) would be built.

At Nellie's Corner the alignment would shift east of the existing alignment, gradually curving east through Shane Ridge at its western tip or "knob." The alignment would then descend the ridge, staying south of the existing P-78 alignment, tying back into P-78 at S-421, near the southern bridge approach. Estimated construction costs for this alternative are $15,741,200 (in 1999 dollars).

Alternative B1 (MDT's Preferred Alternative). From S-419 on the south through Absarokee to Shane Creek this alternative would be the same as Alternative A1. Immediately north of Shane Creek the alignment would follow what is described as the "Flats" alignment. The alignment would shift to the east then swing west to the outside of the existing sharp corner to provide a gentler curve at Nellie's Corner. Estimated construction costs are $14,407,300 (in 1999 dollars).

Alternative D1. From S-419 on the south through Absarokee to Shane Creek this alternative would be the same as Alternative A1. Immediately north of Shane Creek Alternative D1 would leave P-78, gradually curving east through Shane Ridge at a low point or "saddle." The alignment would descend the ridge and tie back into P-78 at S-421 near the southern bridge approach. Estimated construction costs for this alternative are $15,387,600 (in 1999 dollars).

Build Alternatives — 10.8 m (36 ft) Cross Section

A 10.8 m (36 ft) cross section, consisting of two 3.6 m (12 ft) travel lanes and 1.8 m (6 ft) shoulders, was assessed as an alternative to MDT's standard 9.6 m (32 ft) cross section because from a safety or operational standpoint, the wider shoulder might provide some benefit over a 9.6 m (32 ft) cross section.

Alternative A2. The alignment for Alternative A2 would be the same as that described for Alternative A1 under the 9.6 m (32 ft) Cross Section Alternatives. The difference is that the road would be 10.8 m (36 ft) wide from S-419 to the Yellowstone River bridge. For the climbing lane south of Absarokee the total pavement width would increase to 14.4 m (48 ft) for 1.5 km (0.9 mi) to accommodate a 3.6 m (12 ft) lane plus 1.8 m (6 ft) shoulders. At Nellie's Corner the alignment would follow the "Knob" alignment. Estimated construction costs for this alternative are $17,110,100 (in 1999 dollars).

Alternative B2. From S-419 on the south through Absarokee to Shane Creek this alternative would be the same as Alternative A2. Immediately north of Shane Creek the Alternative B2 alignment would shift east of the existing alignment, then swing west to the outside of the existing sharp corner to provide a gentler curve at Nellie's Corner, the same as Alternative B1 under the 9.6 m (32 ft) Cross Section Alternatives. Estimated construction costs are $15,684,600 (in 1999 dollars).

Alternative D2. From S-419 on the south through Absarokee to Shane Creek this alternative would be the same as Alternative A2. Immediately north of Shane Creek Alternative D2 would leave P-78, gradually curving east through Shane Ridge at a low point or "saddle," as described for Alternative D1 under the 9.6 m (32 ft) Cross Section Alternatives. Estimated construction costs for this alternative are $16,715,600 (in 1999 dollars).

ENVIRONMENTAL IMPACTS

The alternatives were analyzed to determine their impacts on land use, farmlands, social conditions, transportation right-of-way, economic conditions, pedestrian and bicycle facilities, air quality, noise, water quality, wetlands, waterbodies and wildlife habitat, floodplains, threatened and endangered species, cultural (archaeological and historic) resources, hazardous wastes, and visual resources. The differences between all of the alternatives are highlighted in Table 1 (see page viii).

Compared to the No-Build Alternative, the greatest impacts of the Build Alternatives would be in terms of safety, level of service, and right-of-way. All of the Build Alternatives would satisfy the purpose of and need for the project and would provide positive benefits by addressing safety concerns, increasing roadway capacity, and improving travel efficiency. For this section of P-78 under the No-Build Alternative the existing level of service (LOS) C would decline to LOS D by 2021, whereas the Build Alternatives would function at LOS B for most of the life of the project, declining to LOS C by either 2014 or 2017, depending on the cross section width. Throughout the corridor pedestrians and bicyclists would benefit from the provision of wider shoulders, and in Absarokee the community would benefit from sidewalk improvements. Compared to the No-Build Alternative, all of the Build Alternatives would have impacts on farmlands and wetlands. They would also require additional right-of-way acquisition and the relocation of residences, outbuildings, and wells or springs. Historic irrigation ditches in the Lower Stillwater River Historic Irrigation District would have to be relocated, and Half-Way Ranch, which is eligible for listing on the National Register of Historic Places, would be adversely affected, requiring relocation.

An impact comparison of Alignment Alternatives A, B, and D for both sets of cross section alternatives shows that Alignment Alternative A would cause the greatest noise impacts, affect more wetlands, require the most new right-of-way, and cost the most. However, it would result in one fewer well relocation.

Alignment Alternative B under both cross section alternatives would impact the greatest amount of total prime and statewide important farmlands, but it would require the least amount of new right-of-way, would not affect any springs, would have the least visual impact, would provide the best access to existing residences, and would cost the least for each cross section.

Alignment Alternative D under both cross section alternatives would result in the most residential and outbuilding relocations, the greatest number of indirect residential accesses, and the most historic ditch crossings, and it would be the only alternative that would affect the Crow cultural site in the Shane Ridge area. However, it would have the least impact on farmlands and wetlands, and it would require the least relocation of historic irrigation ditches.

Alignment Alternative B is the preferred alignment because it would be the most cost-effective of the three alignment alternatives, would require the least amount of new right-of-way, and would have the least amount of access and visual impacts. Construction costs for Alignment Alternative B for both cross section widths would be $1.0 million to $1.4 million less than Alignment Alternative A or D; therefore, Alignment Alternative B would be six to eight percent less expensive. Alignment Alternative B would have the fewest number of relocations (three residences and three outbuildings) and would require 1.1 to 2.8 ha (2.7 to 6.9 ac) less right-of-way than Alignment Alternative A or D. While the 10.8 m (36 ft) cross section would provide additional operational and safety benefits, there would be greater impacts on farmlands, wetlands, right-of-way, historic ditches, and wells/springs; also, construction costs would be higher. For Alternative B2 the operational benefits of the wider cross section would include extending the level of service (LOS B) for three more years. Safety benefits of the wider shoulder in the 10.8 m (36 ft) cross section would include accommodating bicyclists in accordance with AASHTO guidelines and the potential for an additional 2.6 percent reduction in the number of accidents, as predicted by modeling various cross sections. However, these benefits would be offset by the additional adverse impacts to farmlands, wetlands, right-of-way, historic ditches, wells/springs, and higher construction costs. The greatest impact would be the nine percent or $1.3 million increase in construction costs. Therefore, the 9.6 m (32 ft) cross section was preferred. It should be noted that the public has expressed the desire to minimize the additional right-of-way required and that the 9.6 m (32 ft) cross section is consistent with this desire because it would require 3.8 ha (9.3 ac) less right-of-way than would the 10.8 m (36 ft) cross section.

Alternative B1 with a 9.6 m (32 ft) cross section would be cost-effective; would address current safety issues and roadway deficiencies; would improve future roadway capacity; and would provide an opportunity to improve travel efficiency, business operations, and access for roadway users.

Impacts of the Climbing Lane South of Absarokee

All the Build Alternatives include a south climbing lane south of Absarokee because the traffic conditions and roadway grade warrant a climbing lane based on guidance in AASHTO's *A Policy on Geometric Design of Highways and Streets* (1994.) AASHTO guidelines require that four climbing lane criteria be met: (1) heavy vehicle peak traffic volumes must exceed 20 vehicles per hour; (2) the grade (incline) must cause a speed reduction of at least 15 km/h (10 mph); (3) the level of service on the incline must be very low (LOS E or F) or be reduced by two levels (see Table 1.4); and (4) the construction costs of a climbing lane must be considered reasonable.

Since this climbing lane was an important topic at a public meeting in Absarokee, the impacts attributed specifically to the climbing lane are presented here. Both beneficial and adverse impacts of this climbing lane under Alignment Alternatives A, B, and D for both cross section widths are highlighted in Table 2. Benefits include increased safety and travel time savings afforded to roadway users. The adverse impacts resulting from the climbing lane south of Absarokee include an additional $35,000 in construction costs and additional right-of-way requirements of 0.1 ha (0.3 ac) for the 9.6 m (32 ft) Cross Section Alternatives and 0.3 ha (0.7 ac) for the 10.8 m (36 ft) Cross Section Alternatives. This right-of-way is all farmland of statewide importance (farmland that is important statewide or locally for the production of food, feed, fiber, forage, or oilseed, as determined by the Secretary of Agriculture).

Most of the adverse impacts of the climbing lane would be considered negligible when compared to impacts for the entire corridor. The cost of the climbing lane represents 0.2 percent of the corridor project costs for any alternative. The additional right-of-way accounts for approximately 0.1 percent of the additional corridor right-of-way required for the 9.6 m (32 ft) Cross Section Alternatives, and 0.4 percent of the additional corridor right-of-way required for the 10.8 m (36 ft) Cross Section Alternatives. The proportion of the corridor farmland impacts attributed to the climbing lane is similar to the right-of-way impacts.

The climbing lane was proposed for inclusion in the project alternatives because the safety and travel time benefits outweighed the additional cost and right-of-way impacts.

Table 1: Comparison of Environmental Consequences

SUBJECT AREA	NO-BUILD ALTERNATIVE	9.6 M (32 FT) CROSS SECTION ALTERNATIVES			10.8 M (36 FT) CROSS SECTION ALTERNATIVES		
		A1	B1	D1	A2	B2	D2
Travel Demand / Roadway Capacity / Safety							
• Level of Service (LOS)	LOS D in 2021	LOS C in 2021 (LOS B until 2014)	Same as A	Same as A	LOS C in 2021 (LOS B until 2017)	Same as A	Same as A
• Safety	No improvement; no shoulders; no accident reduction measures implemented.	Reduction in accidents due to improved horizontal and vertical alignment; 1.2 m (4 ft) shoulders.	Same as A	Same as A	Reduction in accidents due to improved horizontal and vertical alignment; 1.8 m (6 ft) shoulders. A slight (2.6%) additional reduction predicted for wider shoulders.	Same as A	Same as A
Construction Cost	None	$15,741,200	$14,407,300	$15,387,600	$17,110,100	$15,684,600	$16,715,600
Land Use	Not consistent with local plans	Consistent with local plans	Same as A	Same as A	Consistent with local plans	Same as A	Same as A
Farmland							
• Prime	No impact	3.2 ha (7.9 ac)	7.9 ha (19.7 ac)	0.4 ha (1.0 ac)	3.6 ha (8.9 ac)	8.2 ha (20.3 ac)	0.4 ha (1.0 ac)
• Statewide Importance	No impact	71.4 ha (176.4 ac)	69.4 ha (171.5 ac)	68.4 ha (169.0 ac)	75.0 ha (185.3 ac)	72.5 ha (179.1 ac)	71.5 ha (176.7 ac)
Total Farmland Affected		74.6 ha (184.3 ac)	77.3 ha (191.2ac)	68.8 ha (170.0ac)	78.6 ha (194.2ac)	80.7 ha (199.4ac)	71.9 ha (177.7ac)
Social / Economic Impacts							
• Environmental Justice	No impact	No impact	No impact	No impact	No impact	No impact	No impact
• Residential Nondirect Access to P-78	No change	3	0	21	3	0	21
• Public/Community Facilities	No improvement	Improved access; safer and more efficient operation of services.	Same as A	Same as A	Improved access; safer and more efficient operation of services.	Same as A	Same as A
Commercial Properties							
• Access / Movement of Goods	No change	Improved	Improved	Improved	Improved	Improved	Improved
• Property Impacts	No impact	ROW required; reconfigured sites or approaches; ROW encroachment could affect the operation of one business.	Same as A	Same as A	ROW required; reconfigured sites or approaches; ROW encroachment could affect the operation of one business.	Same as A	Same as A

SUBJECT AREA	NO-BUILD ALTERNATIVE	9.6 M (32 FT) CROSS SECTION ALTERNATIVES			10.8 M (36 FT) CROSS SECTION ALTERNATIVES		
		A1	B1	D1	A2	B2	D2
Parks and Recreation Facilities Impacted							
• MacKay Athletic Field	No impact	140 sq m (1,506 sq ft) for ROW; 403 sq m (4,390 sq ft) for construction permit. Section 4(f) does not apply.	Same as A	Same as A	140 sq m (1,506 sq ft) for ROW; 403 sq m (4,390 sq ft) for construction permit. Section 4(f) does not apply.	Same as A.	Same as A.
• Fishing Access Roads	No improvement	Improved safety at access road intersections; not a Section 4(f) impact.	Same as A	Same as A	Improved safety at access road intersections.	Same as A	Same as A
Transportation Right-of-Way & Relocations							
• New ROW	No impact	81.8 ha (202.1 ac)	80.5 ha (198.9 ac)	81.6 ha (201.6 ac)	87.1 ha (215.2 ac)	84.3 ha (208.3 ac)	85.7 ha (211.7 ac)
• Relocations:							
Residences	No impact	3	3	4	3	3	4
Outbuildings	No impact	3	3	5	3	3	5
Wells / Springs	No impact	8 wells / 1 spring	9 wells	9 wells / 1 spring	9 wells / 1 spring	10 wells	10 wells / 1 spring
Irrigation Ditches	No impact	Relocations required	Same as A	Same as A	Relocations required	Same as A	Same as A
Pedestrian / Bicycle Impacts							
• Corridor outside Absarokee	Pedestrians and cyclists would not be accommodated.	Improved; but shoulder with rumble strip would not meet AASHTO guidance for bike use.	Same as A	Same as A	Improved; shoulder would meet AASHTO guidance for bike use, with or without rumble strips.	Same as A	Same as A
• Absarokee Sidewalks	No improvement	Added or improved from Absarokee High School to Montana Avenue.	Same as A	Same as A	Added or improved from Absarokee High School to Montana Avenue.	Same as A	Same as A
Air Quality	NAAQS compliant; highest emissions (due to worst LOS)	NAAQS compliant; lower emissions (due to improved LOS)	Same as A	Same as A	NAAQS compliant; lower emissions (due to improved LOS)	Same as A	Same as A
Noise	3 sites exceed nose abatement criteria (NAC)	4 sites exceed NAC	2 sites exceed NAC	2 sites exceed NAC	4 sites exceed NAC	2 sites exceed NAC	2 sites exceed NAC
Water Quality							
• Yellowstone River Basin	No impact	Temporary construction impacts	Same as A	Same as A	Temporary construction impacts	Same as A	Same as A
• Wells	No impact	No impact (see relocations)	Same as A	Same as A	No impact (see relocations)	Same as A	Same as A

SUBJECT AREA	NO-BUILD ALTERNATIVE	9.6 M (32 FT) CROSS SECTION ALTERNATIVES			10.8 M (36 FT) CROSS SECTION ALTERNATIVES		
		A1	B1	D1	A2	B2	D2
• Absarokee Water System	No improvement	Stormwater drainage and some water system improvements provided.	Same as A	Same as A	Stormwater drainage and some water system improvements provided.	Same as A	Same as A
Wetlands	No impact	1.611 ha (3.981 ac)	0.931 ha (2.301 ac)	0.860 ha (2.125 ac)	1.806 ha (4.463 ac)	1.029 ha (2.543 ac)	0.899 ha (2.221 ac)
Waterbody Modifications and Wildlife	No impact	Channel modifications at creeks; minimal impacts to wildlife and aquatic resources.	Same as A	Same as A	Channel modifications at creeks; minimal impacts to wildlife and aquatic resources.	Same as A	Same as A
Floodplains	Continued transverse encroachments to base floodplains associated with Butcher, Beaver, Whitebird, and Shane Creeks.	Transverse encroachment of floodplains associated with Butcher, Beaver, Whitebird, and Shane Creeks, plus Yellowstone River. No increase to base flood elevations.	Same as A	Same as A	Transverse encroachment of floodplains associated with Butcher, Beaver, Whitebird, and Shane Creeks, plus Yellowstone River. No increase to base flood elevations.	Same as A	Same as A
Threatened and Endangered Species	No impact	Not likely to adversely affect bald eagles or black-footed ferrets. Would not jeopardize the delisted peregrine falcon.	Same as A	Same as A	Not likely to adversely affect bald eagles or black-footed ferrets. Would not jeopardize the delisted peregrine falcon.	Same as A	Same as A
Archaeological / Historic Resources							
• Lower Stillwater River Historic Irrigation District	No effect	Adverse effect; 5,853 m (19,202 ft) of ditch relocations; 9 crossing replacements.	Adverse effect same as A except 11 crossing replacements.	Adverse effect; 5,610 m (18,405 ft) of ditch relocations; 13 crossing replacements.	Adverse effect; 6,216 m (20,393 ft) of ditch relocations; 9 crossing replacements.	Adverse effect; 6,123 m (20,088 ft) of ditch relocations; 11 crossing replacements.	Adverse effect; 5,880 m (19,291 ft) of ditch relocations; 13 crossing replacements.
• Half-Way Ranch	No effect	Adverse effect; 1,384 sq m (14,897 sq ft) of new ROW; relocation of historic residence and outbuildings on site.	Same as A	Same as A	Adverse effect; 1,384 sq m (14,897 sq ft) of new ROW; relocation of historic residence and outbuildings on site.	Same as A	Same as A
• Ten Absarokee Properties Eligible for National Register of Historic Places	No effect	No effect	No effect	No effect	No effect	No effect	No effect
• Riverside Inn	No effect	No effect. 729 sq m (7,844 sq ft) for ROW; 1,665 sq m (17,922 sq ft) for construction permit.	Same as A	Same as A	No effect. 729 sq m (7,844 sq ft) for ROW; 1,665 sq m (17,922 sq ft) for construction permit.	Same as A	Same as A
• Petosa Homestead/Bare Ranch	No effect	No effect	No effect	No effect	No effect	No effect	No effect

SUBJECT AREA	NO-BUILD ALTERNATIVE	9.6 M (32 FT) CROSS SECTION ALTERNATIVES			10.8 M (36 FT) CROSS SECTION ALTERNATIVES		
		A1	B1	D1	A2	B2	D2
• Crow Cultural Site — Shane Ridge Area	No effect	No impact	No impact	Impacted	No impact	No impact	Impacted
Section 4(f) Properties Impacted	None	Lower Stillwater River Historic Irrigation District Riverside Inn Half-Way Ranch	Same as A	Same as A	Lower Stillwater River Historic Irrigation District Riverside Inn Half-Way Ranch	Same as A	Same as A
Hazardous Materials	No impact	3 potential sites	3 potential sites	3 potential sites	3 potential sites	3 potential sites	3 potential sites
Visual Resources	No impact	At Nellie's Corner substantial adverse visual impacts due to large cut-and-fill slopes. South of Nellie's Corner moderate adverse visual impacts due to cuts and fills at two locations.	At Nellie's Corner minimal visual impacts due to small cut-and-fill slopes. South of Nellie's Corner moderate adverse visual impacts due to cuts and fills at two locations.	At Nellie's Corner substantial adverse visual impacts from large cut-and-fill slopes. South of Nellie's Corner moderate adverse visual impacts due to cuts and fills at two locations.	At Nellie's Corner substantial adverse visual impacts due to large cut-and-fill slopes. South of Nellie's Corner moderate adverse visual impacts due to cuts and fills at two locations.	At Nellie's Corner minimal visual impacts due to small cut-and-fill slopes. South of Nellie's Corner moderate adverse visual impacts due to cuts and fills at two locations.	At Nellie's Corner substantial adverse visual impacts from large cut-and-fill slopes. South of Nellie's Corner moderate adverse visual impacts due to cuts and fills at two locations.
Energy	Highest fuel consumption (due to worst LOS)	Lower fuel consumption (due to improved LOS)	Same as A	Same as A	Lower fuel consumption (due to improved LOS)	Same as A	Same as A
Construction	None	Temporary impacts include increased noise, mobile source emissions, fugitive dust, soil erosion, construction easements, traffic delays.	Same as A	Same as A	Temporary impacts include increased noise, mobile source emissions, fugitive dust, soil erosion, construction easements, traffic delays.	Same as A	Same as A

Source: MSE-HKM Memorandum, December 17, 1999; BRW, 2000.

Table 2: Impacts of the Climbing Lane South of Absarokee

SUBJECT AREA	NO-BUILD ALTERNATIVE	9.6 M (32 FT) CROSS SECTION ALTERNATIVES			10.8 M (36 FT) CROSS SECTION ALTERNATIVES		
		A1	B1	D1	A2	B2	D2
Travel Demand/Roadway Capacity/Safety							
• Travel Time Savings	No improvement	28.9 seconds per vehicle during peak hour travel (34.2 seconds per vehicle for those traveling to or beyond the Nye Road intersection); savings of 10,058 hours annually.*	Same as A	Same as A	28.9 seconds per vehicle during peak hour travel (34.2 seconds per vehicle for those traveling to or beyond the Nye Road intersection); savings of 10,058 hours annually.*	Same as A	Same as A
• Safety	No improvement	Climbing lane provides safe passing of slower vehicles.	Same as A	Same as A	Climbing lane provides safe passing of slower vehicles.	Same as A	Same as A
Construction Cost	None	$35,000	Same as A	Same as A	$35,000	Same as A	Same as A
Farmland							
• Statewide Importance	None	0.1 ha (0.3 ac)	Same as A	Same as A	0.3 ha (0.7 ac)	Same as A	Same as A
Transportation ROW & Relocations							
• New ROW	None	0.1 ha (0.3 ac)	Same as A	Same as A	0.3 ha (0.7 ac)	Same as A	Same as A

Source: MSE-HKM, Memorandum, November 2, 2000; MDT, Memorandum, Climbing Lane Analysis, September 27, 1999; BRW Memorandum, South Climbing Lane Delay Estimate, November 2000.

*Assuming 1.2 passengers per vehicle.

SUMMARY OF CUMULATIVE IMPACTS

Cumulative impact is the impact on the environment that results from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions.

Other Ongoing/Pending Actions

Other ongoing/pending actions or projects within the area or relating to the P-78 corridor are summarized below.

> MDT has nominated the P-78 corridor from Columbus to Red Lodge for consideration as an access management plan project. The intent of the plan would be to manage access for public safety and to establish a framework for future development access. The development of the plan with public input would require the consideration of the varying access demands along the corridor. The anticipated start date for this study is spring 2001. Until such a plan is in place, the current process and criteria for obtaining an approach permit (including driveway access) would continue.
>
> MDT has received environmental clearance to replace the Stillwater River bridge at the Riverside Inn, which adjoins this project; it is approximately 2.9 km (1.8 mi) northeast of Absarokee. A "Finding of No Significant Impact" was approved by FHWA on June 3, 1999. This project is currently under construction.
>
> MDT has a pending bridge replacement project on the northwest side of Absarokee on S-420.
>
> MDT has a proposed project to realign the approach roads and replace the two structures over the West Fork of the Stillwater River in southwestern Stillwater County on S-419 approximately 1 km (0.6± mi.) north of the community of Nye, which is approximately 32 km (20 mi) west of P-78.
>
> FHWA completed an "Environmental Assessment" for improvements to the Nye Road (S-419) from P-78 to the Stillwater Mine, and a "Finding of No Significant Impact" was signed in 1993. Some segments of this road have already been reconstructed. The segment from P-78 to Dean has been completed, and the segment from Nye to the Stillwater Mine is currently under construction. The last segment to be reconstructed will be from Dean to Nye; this segment has not yet been funded.
>
> The Stillwater Mining Company is planning to expand a system of pipelines along Stillwater County Roads 419 and 420, connecting the new tailing impoundment to the mine's mill and tailing reclaim circuit.
>
> The town of Absarokee is planning to replace portions of its existing domestic water system.
>
> Community Transportation Enhancement Program (CTEP) funds have been secured for the Absarokee sidewalk project, which will establish a safe zone for pedestrians along South Montana Avenue and Willow Street. This project was also approved by Absarokee Town Ditch and Sylvester-Beazley-Runner shareholders on January 20, 2001.
>
> Reconstruction of S-421 linking Columbus and Joliet was awarded top priority in the MDT Billings District. The project will involve vertical and horizontal realignment and widening of the road. The earliest it would go to contract would be sometime after 2004.

Primary Cumulative Impacts

None of the projects that were identified would individually or cumulatively result in substantial adverse environmental impacts when considered in conjunction with the Build Alternatives considered in this *Draft Environmental Impact Statement.*

Secondary Cumulative Impacts

It is impossible to accurately quantify the impact on growth and development that could be induced by these projects. Because this area is not currently experiencing, nor is it anticipated to experience, substantial increases in population or employment, and because the proposed improvements to P-78 would essentially maintain the existing roadway at two lanes very near its current alignment, it is not anticipated that this proposed action individually or cumulatively would have any adverse impact greater than that discussed in the individual sections of this document. It should also be noted that the proposed project is not intended to induce growth, but instead to bring the condition of the road up to current standards in order to accommodate existing and anticipated growth. Population growth will occur independent of the completion of the proposed project.

SUMMARY OF MITIGATION COMMITMENTS

No mitigation is anticipated pertaining to land use, pedestrian and bicycle concerns, floodplains, or energy. For other topic areas the overall project and construction-related mitigation measures associated with the Preferred Alternative are summarized below.

Farmlands

Mitigation of farmland impacts would include (1) the use of best management practices, which limit disturbance and control erosion, and (2) the reclamation of disturbed vegetation within the construction limits. All acquisitions and relocations would be coordinated as outlined below under "Right-of-Way and Relocations." Impacted irrigation ditches would be relocated in consultation with ditch owners to minimize impacts to farming operations. Any adverse impacts to historic irrigation district ditches would be mitigated in accordance with the 1989 Memorandum of Agreement (MOA) between MDT, the State Historic Preservation Officer (SHPO), and FHWA.

Parks and Recreation Facilities

To avoid impacting the baseball field at Absarokee High School, no construction activity or property acquisition would occur beyond the existing right-of-way on the east side of P-78. A "V" ditch or culverts would be used at the MacKay athletic field to minimize the amount of additional right-of-way at this facility.

The MacKay athletic field primarily serves students of the school and not the public at large. Fencing and gating across the access road to this facility restricts public access; therefore, Section 4(f) does not apply. Fishing access points found along the Stillwater River north of Absarokee near P-78 would not be affected by the proposed project, and Section 4(f) would not apply (see "Part II: Section 4(f) Statement").

Transportation Right-of-Way and Relocations

All lands needed for right-of-way on this proposed project would be from private ownership and would be acquired in accordance with both the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (P.L. 91-646), and the Uniform Relocation Act Amendments of 1987 (P.L. 100-17). Compensation for right-of-way acquisitions would be made at fair market value for the highest and best use of the land.

The following residential relocation payments would be made under the conditions outlined in the Relocation Act.

- moving costs
- replacement housing payments in the form of purchase supplements (in the case of a price differential, increased mortgage and interest costs, or closing costs), rental assistance, or down payment

No person may be displaced from their residence unless a comparable replacement dwelling found to be "decent, safe, and sanitary" is available and is provided for the displaced occupant.

Impacted wells would be addressed in coordination with the well owners and MDT engineers. Private well owners could have three options:

1. wells that would not be physically impacted could be left within the right-of-way (as long as they are outside of the clear zone*), and the well owners could be provided with an easement;
2. for wells that would be impacted, MDT would retain a driller to drill a new well; or
3. the well owner could hire a private contractor to do the replacement and have MDT reimburse the contractor for services rendered.

To avoid disturbing the Joe Hill grave, the site would be marked during construction.

Utility relocations would be coordinated with these lines' owners before any reconstruction.

Socioeconomic Considerations

All right-of-way acquisitions and relocations would be coordinated as outlined above. Businesses, farms, and/or nonprofit organizations displaced by a MDT project would also be eligible for moving costs including:

- personal property loss
- expenses in finding a replacement location
- reestablishment expenses

While traditional access might be altered, business access would be maintained throughout the reconstruction of P-78 between S-419 and Columbus. Major driveway access changes would be coordinated with the property owners who were impacted.

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* Clear zone: an unencumbered designated distance from the travel lane that provides space for the recovery of vehicles leaving a roadway out of control; clear zones are site specific and are determined based upon roadway geometry, traffic volume, and speed.

Air Quality

This proposed project is located in an "unclassifiable"/attainment area of Montana for air quality under 40 CFR 81.327, as amended. As such, this proposed project does not require an air quality conformity determination under the EPA's Final Rule of September 15, 1997. Therefore, this proposed project complies with Section 176(c) of the Clean Air Act (42 U.S.C. 7521(a)), as amended. The air quality impacts due to the proposed project would be limited to short-term increases in fugitive dust and mobile source emissions during construction. Care would be taken during construction to reduce the amounts of particulates generated by requiring contractors to adhere to all state and local regulations and to best management practices.

To minimize the amount of additional vehicle emissions during construction, a construction traffic control plan would be developed to limit disruption to corridor traffic.

Noise

Although permanent noise impacts are identified at a few locations within the proposed project, there are no reasonable and feasible solutions for mitigating them. As such, no project-related mitigation is anticipated.

The proposed project's contractor would be subject to all state and local laws to minimize construction noise.

Water Quality

Best management practices would be used to minimize impacts caused by the relocation of wells and springs, and by siltation into all drainage areas (perennial and intermittent). Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices would prevent or reduce the pollution of U.S. waters from discharges of dredged or fill material. Best management practices include methods, measures, practices, or design performance standards that facilitate compliance with the Section 404(b)(1) guidelines (40 CFR 230), effluent limitations or prohibitions under 307(a), and applicable water standards. Temporary barriers would be used to prevent any material or excavation from falling into watercourses. If any material did enter the water, it would be removed in coordination with state and federal agencies. An erosion control plan would be prepared as part of the design and permitting process.

Wetlands

Wetland compensatory replacement for this proposed project would be provided through the use of wetlands constructed at the MDT/Stillwater County, Stillwater River Wetland Mitigation Site, south of the Columbus. This site is west of the study area along the southeast bank of the Stillwater River in lots 5 and 6 (Township 3S, Range 19E, Section 22), west of RP 37.7±. This wetland mitigation site was completed in late 1998 as a partnership among MDT, Columbus, and Stillwater County. Approximately 16 percent (0.45 ha /1.12 ac) of the completed mitigation site has been assigned to the Columbus Airport Project wetland impacts. The remaining approximately 84 percent (2.38 ha / 5.88 ac) is available for MDT project impacts. This easement-protected and monitored wetland mitigation site has been initially rated as category II (post construction), with excellent potential to develop fully as category I. There are sufficient compensatory wetlands at this site to easily accommodate replacement for the proposed P-78 project wetland impacts. Temporary impacts during construction would be minimized using best management practices, based on guidelines in MDT's "Highway Construction Standard Erosion Control Work Plan."

Waterbodies and Wildlife Habitat

Channel length and aquatic habitat features in the modified channels would simulate the original natural channel lengths and habitat features as much as possible. Disturbed streambanks would be revegetated to reduce erosion, and best management practices would be used to minimize siltation into all drainage areas. The U.S. Fish and Wildlife Service (USFWS) and Montana Fish, Wildlife & Parks (MFWP) would be consulted as appropriate if any other issues arose.

To protect raptors, any power lines that were modified or reconstructed as a result of the project would be raptor-proofed in accordance with the criteria and techniques outlined in the Raptor Research Report No. 4, "Suggested Practices for Raptor Protection on Power Lines — the State of the Art 1981."

Threatened and Endangered Species

To protect bald eagles and peregrine falcons, utilities to be relocated as a result of construction projects would adhere to the "Suggested Practices for Raptor Protection on Power Lines" cited above.

Early coordination with USFWS and MFWP determined that formal consultation under Section 7 of the Endangered Species Act (ESA) is not required. The USFWS and MFWP would be consulted as appropriate if any other issues arose.

Archaeological and Historic Resources

Three NRHP-eligible sites — the Lower Stillwater River Historic Irrigation District, the Half-Way Ranch, and the Riverside Inn — are Section 4(f) properties. Section 4(f) mitigations are discussed in further detail in "Part II: Section 4(f) Statement."

The overall construction effects to historic irrigation ditches would require relocation, and any adverse effects would be mitigated in accordance with the 1989 "Memorandum of Agreement"(MOA) that is still in effect between FHWA, MDT, and SHPO. Mitigation measures agreed upon include (1) perpetuating the ditches by relocating them immediately outside the new highway right-of-way; (2) keeping a record of the existing and new locations of the ditches on project plans (these plans would be stored by MDT and made available to researchers); and (3) preparing a researchers' guide to historic irrigation systems in Montana. The preparation of this researchers' guide has been completed and is included in Appendix C.

The "Memorandum of Agreement" (MOA) would aid in efforts to mitigate adverse impacts to ditches caused by Alignment Alternatives A, B, and D. Avoidance of Alignment Alternative D is recommended to avoid areas of Shane Ridge, which are considered culturally sensitive by the Crow. Since Alignment Alternative D would also have the most impacts on historic ditches, the use of either Alignment Alternative A or B would minimize impacts to the historic ditches.

Measures to mitigate impacts at the Half-Way Ranch site would include steepening fill slopes within the site boundary to reduce the right-of-way width. This measure would result in an overall reduction of 546 sq m (5,877 sq ft) of right-of-way on site. The impacted historic buildings at the ranch would be relocated on site, if feasible. Coordination has been undertaken among FHWA, MDT, SHPO, and the property owner to implement a "Memorandum of Agreement," that was signed on January 31, 2001, to mitigate adverse impacts at this site (see Appendix C). Mitigation measures of the Half-Way Ranch MOA include the following five stipulations: (1) all necessary forms for the National Register of Historic Places will be prepared by MDT in consultation with the SHPO, prior to letting of the construction contract, and if the site is placed on the National Register, MDT will coordinate and cover all costs for fabricating a sign that describes the history and significance of the site; (2) if the property is not placed on the National Register, MDT shall contact and coordinate with the Historic American Buildings Survey to determine appropriate recordation procedures and ensure that all documentation is completed and distributed to the proper entities prior to the relocation of the residence on the property; (3) MDT will relocate residence F-1, outbuilding F-2, and garage F-3 out of the ROW and construction limits with as little alteration as possible, and this relocation will be conducted by a professional mover of historic buildings; (4) new silver maple, cottonwood, and spruce trees will be planted on the site; and (5) if a dispute arises regarding this MOA, FHWA shall consult with the objecting party to resolve the dispute, and further comments shall be requested from the Advisory Council on Historic Preservation if disputes are not deemed resolvable by any consulting party.

Measures taken to mitigate impacts at the Riverside Inn site would include a minor horizontal alignment shift of P-78 away from the site and into the hillside to the east. This alignment shift would reduce the right-of-way impacts by more than half, from 1,523 sq m (16,387 sq ft) to 729 sq m (7,844 sq ft). To minimize impacts to the site from the realigned county road that will become a private driveway, the side slopes of this approach road were reduced from 6:1 to 2:1. The reduction in side slopes resulted in avoiding the one-story building (currently used as a garage) south of the county road and reducing the construction easement area.

In the event that archeological resources were discovered during construction, appropriate mitigation measures would be followed to ensure their identification, evaluation, and disposition.

Hazardous Waste Sites

Soils in areas of potential hazardous waste in Absarokee should be monitored for the presence of volatile organic vapors using a photo-ionization detector, or an equivalent instrument. The Montana Department of Environmental Quality (MDEQ) should be notified in the event of any detected contaminated soil. Additionally, it is recommended that the underground storage tanks at the American Enterprises' site be moved to a location away from the P-78 right-of-way if curbing and sidewalk work was conducted in that area.

Likely practices for the mitigation of soils potentially contaminated by hydrocarbons include direct disposal or an on-site application treatment (land farming). If encountered, soils potentially contaminated with hydrocarbon fuel compounds would be disposed of in accordance with guidance and approvals obtained from MDEQ and Stillwater County, which are decided on a case-by-case basis.

An appropriate type of disposal site for hazardous waste would be a class II landfill, which is specifically designed for the disposal of hazardous waste.

Visual Resources

Mitigation techniques for visual resource impacts would include the following measures, if practicable: vegetation clearing that did not result in a linear edge, creating natural looking rock cuts with nonlinear edges, reintroducing native vegetative species, creating pockets in newly graded slopes for plants, and revegetating with a random, meandering edge.

PERMITS REQUIRED

The following permits/authorizations would have to be obtained prior to any project-related activity:

- Compliance with both the water quality provisions of Section 75-5-308 M.C.A. for Section 3(a) authorizations, and stream protection under Sections 87-5-501 through 509 M.C.A.
- A 124SPA stream protection permit from MFWP.
- A Section 402/Montana Pollutant Discharge Elimination System (MPDES) authorization from the MDEQ.
- A Section 404 permit from the U.S. Army Corps of Engineers.
- A water use permit from the Montana Department of Natural Resources and Conservation.
- A Federal Emergency Management Agency floodplain development authorization from Stillwater County.
- National Historic Preservation Act, Section 106, determination of effect on the Half-Way Ranch and implementation of a memorandum of agreement among FHWA, MDT, SHPO, and the property owner.
- Early coordination with USFWS and MFWP determined that formal consultation under Section 7 of the Endangered Species Act was not required.

OTHER FEDERAL ACTIONS REQUIRED

With the exception of the Section 404 permit and standard construction permits, there are no federal actions required for the undertaking of the proposed improvements.

The Preferred Alternative would be in compliance with the following federal acts and executive orders (these acts and executive orders are discussed as they apply to the description of the environment and the environmental consequences).

Civil Rights Act of 1964, Title VI
Clean Air Act of 1990
Clean Water Act of 1977
Endangered Species Act of 1973
Farmland Protection Policy Act of 1981
National Environmental Policy Act of 1969
National Historic Preservation Act of 1966
Uniform Relocation Act Amendments of 1987
Uniform Relocation Assistance and Real Property Acquisition Act of 1970

Executive Order 12898 — Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
Executive Order 11990 — Protection of Wetlands
Executive Order 11988 — Floodplain Management

UNRESOLVED ISSUES RELATED TO IMPACTS

During detailed design for the Absarokee project section (Woodard Avenue) of P-78, additional issues relating to specific design elements (i.e., stormwater retention ponds) could arise. These issues or impacts related to detailed design would be addressed through additional NEPA compliance, as necessary.

CONCLUSION

Improvements to P-78 are recommended. The existing highway does not meet MDT's current standards for rural minor arterials. P-78 is a narrow and winding route, characterized by sharp curves and rolling grades. It was determined that only 25 to 30 percent of the existing horizontal alignment meets current standards, and many of the existing vertical grade changes result in substandard conditions on approximately 90 percent of the vertical alignment. The Preferred Alternative would bring the highway up to MDT standards and address the following needs:

- **Safety Concerns** — The average accident rate is almost four times higher than the rural statewide average. By bringing the roadway up to current MDT standards, poor existing horizontal and vertical alignments would be corrected; sight distances, passing locations, and property access would be improved; and higher travel speeds could be accommodated. Also, the provision of shoulders throughout the corridor, along with sidewalk improvements in Absarokee, would improve safety for pedestrians and bicyclists. Therefore, the project would help improve safety for all types of roadway users.

- **Travel Demand and Roadway Capacity** — For this segment of P-78 it is anticipated that the travel demand would more than double by the year 2021. P-78 currently operates at LOS C, and under the No-Build Alternative it is projected to decrease to LOS D in 2021. Under the Preferred Alternative the highway would operate at LOS B until 2014, then go to LOS C.

- **Travel Efficiency** — Travel efficiency for the P-78 corridor relates to two factors: travel time and roadway system linkage. Improvements would increase the potential to maintain speeds and provide better system linkage between Absarokee and Columbus, as well as the Stillwater Mine and the communities of Fishtail and Dean. P-78 improvements would complement the investment on S-419 and would improve the efficiency of this route.

In summary, improvements to P-78 would address current safety issues and roadway deficiencies; improve future roadway capacity; and provide an opportunity to improve travel efficiency, business operations, and access for roadway users. The Preferred Alternative is Alternative B1 with the 9.6 m (32 ft) cross section, which would address these needs with the least amount of impact, especially with regard to right-of-way and construction costs.

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Metric Conversions

In accordance with recent executive orders and Secretary of Commerce direction, Federal Highway Administration (FHWA) and supporting agency plans are to be presented in metric units. This document, where appropriate, will reflect metric and English units side by side to assist the reader. For example: 13.7 kilometers (8.5 miles). The following is a brief summary of the conversion factors and units used in this document:

Metric Units	English Units	Conversion Factor (Metric to English)
centimeter (cm)	inch (in)	0.3937
meter (m)	foot (ft)	3.2808
kilometer (km)	mile (mi)	0.6214
hectare (ha)	acre (ac)	2.471

Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ac	acre(s)
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
ADT	average daily traffic
APE	area of potential effect
BRR	biological resources report
CADD	computer aided design and drafting
cm	centimeter(s)
CTEP	Community Transportation Enhancement Program
dB	decibel
dB(A)	A-weighted decibel scale (threshold of human hearing)
EA	environmental assessment
EIS	environmental impact statement
E.O.	executive order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
ft	foot (feet)
GLO	General Land Office
ha	hectare(s)
HABS	Historic American Building Survey
in	inch(es)
km	kilometer(s)
Leq(h)	constant sound level per hour
LOS	level of service
m	meter(s)
mi	mile(s)
MDEQ	Montana Department of Environmental Quality
MDPHE	Montana Department of Public Health and Environment
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act

MFWP	Montana Fish, Wildlife & Parks
MNHP	Montana Natural Heritage Program
MRIS	Montana River Information System
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
ROW	right-of-way
RP	reference post
SHPO	State Historic Preservation Office
sq ft	square feet
sq m	square meters
TCP	Traditional Cultural Property
USDOI	United States Department of the Interior
USDOT	United States Department of Transportation
USFS	United State Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
vph	vehicles per hour

PART I: DRAFT ENVIRONMENTAL IMPACT STATEMENT

CHAPTER 1. PURPOSE OF AND NEED FOR THE PROJECT

Chapter 1 identifies the transportation problems and issues that precipitated the MDT's investigation of transportation improvements in the Absarokee to Columbus area. The project limits, the purpose that the improvements are intended to serve, and the need for such improvements are defined.

1.1 PROJECT DESCRIPTION

MDT is proposing to reconstruct the Montana State Primary Route 78 (P-78) from the junction with State Secondary Route 419 (S-419), which is just south of Absarokee, to the southern end of the Yellowstone River bridge, which is just south of Columbus. Included in the reconstruction would be the replacement of existing bridges, culverts, and a stockpass. The existing facility is a narrow and winding route originally constructed in 1935; it received its last major geometric improvement in 1945, and a surface overlay was completed in 1994.

P-78 connects the towns of Absarokee and Columbus, and it ties into I-90, the main east-west interstate in Montana. P-78 also connects the town of Red Lodge (the county seat of Carbon County) and the town of Columbus (the county seat of Stillwater County). Under the MDT Functional Classification System, P-78 is designated as a minor arterial under the primary roadway system, and it serves as the main street (Woodard Avenue) through the town of Absarokee. P-78 is an important element in contributing to the economic health of the agricultural and mining industries, as well as recreational activities in the area.

This proposed project, which would be built sometime after 2003, has been identified in Montana's 1999–2001 State Transportation Improvement Program (STIP) for roadway reconstruction and replacement of structures.

Location of the Proposed Project

The project is located in the Stillwater River valley in south-central Montana, southwest of Billings. The existing alignment is generally parallel and east of Rosebud Creek and Stillwater River. The project area is characterized by rural residential uses and prime agricultural land with gently rolling topography. The project is located entirely within Stillwater County, within the following legal description(s):

Township	Range	Section(s)
4 - S	18 - E	1, 12 & 13
4 - S	19 - E	6
3 - S	19 - E	12, 13, 14, 22, 23, 27, 28, 29, 30 & 31
3 - S	20 - E	5, 6 & 7
2 - S	20 - E	27, 28, 29 & 32

Figure 1.1 shows the general project location, and Figure 1.2 the project corridor and limits.

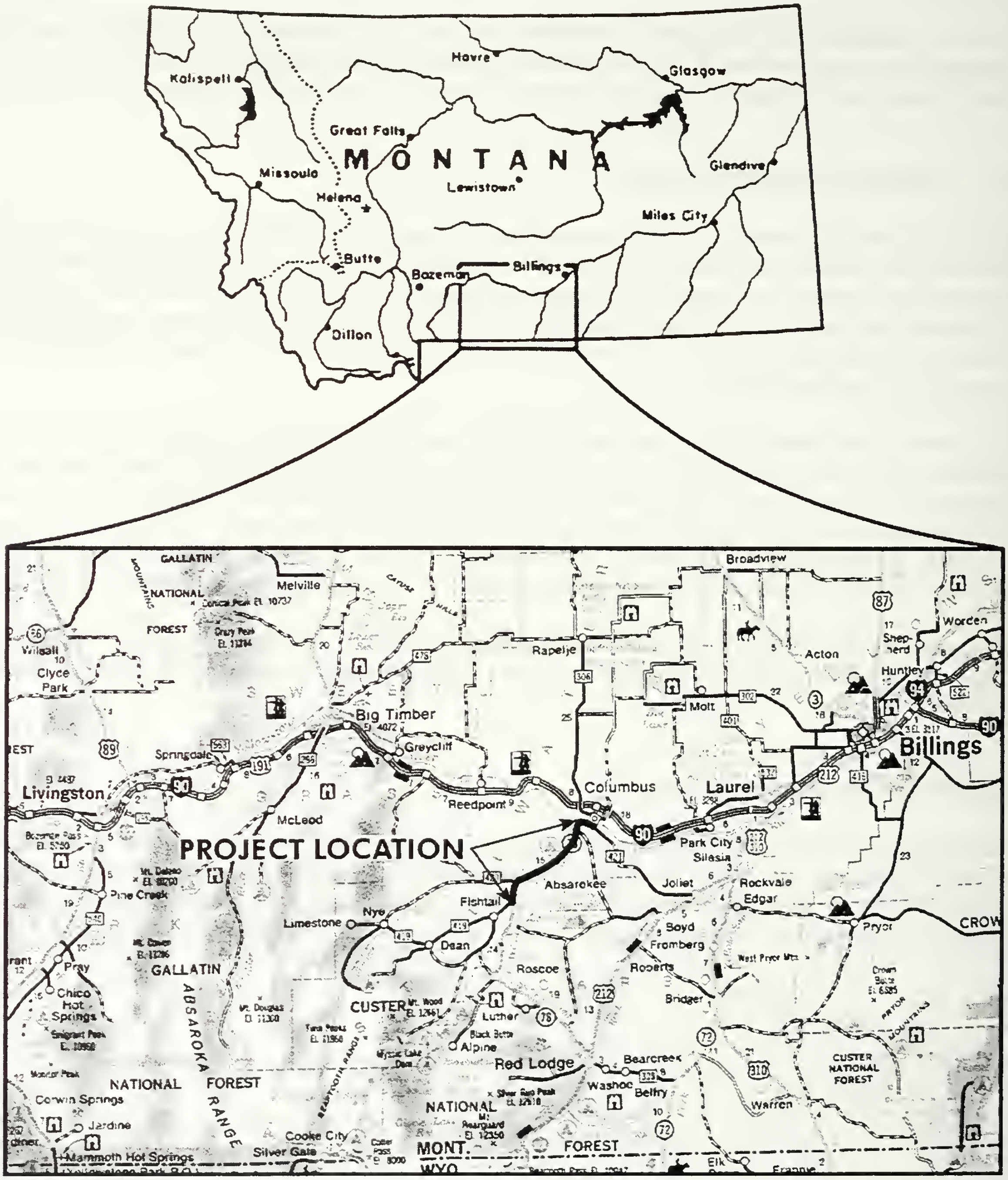

MONTANA
Kalispell
Havre
Glasgow
Great Falls
Missoula
Helena
Lewistown
Glendive
Miles City
Butte
Bozeman
Billings
Dillon
PROJECT LOCATION
Broadview
Melville
Rapelje
Acton
Worden
Shepherd
Huntley
Molt
Big Timber
Greycliff
Billings
Springdale
Livingston
Columbus
Laurel
Reedpoint
McLeod
Park City
Silesia
Absarokee
Joliet
Rockvale
Edgar
Fishtail
Nye
Limestone
Dean
Boyd
Fromberg
Pryor
CROW
Roscoe
Roberts
Bridger
Luther
Alpine
Red Lodge
Bearcreek
Washoe
Belfry
Warren
Wilsall
Clyde Park
Pine Creek
Pray
Chico Hot Springs
GALLATIN
ABSAROKA RANGE
CUSTER
NATIONAL FOREST
CUSTER NATIONAL FOREST
Corwin Springs
Jardine
Mammoth Hot Springs
Cooke City
Silver Gate
MONT.
WYO.
Elk
Frannie

Figure 1.1: Project Location

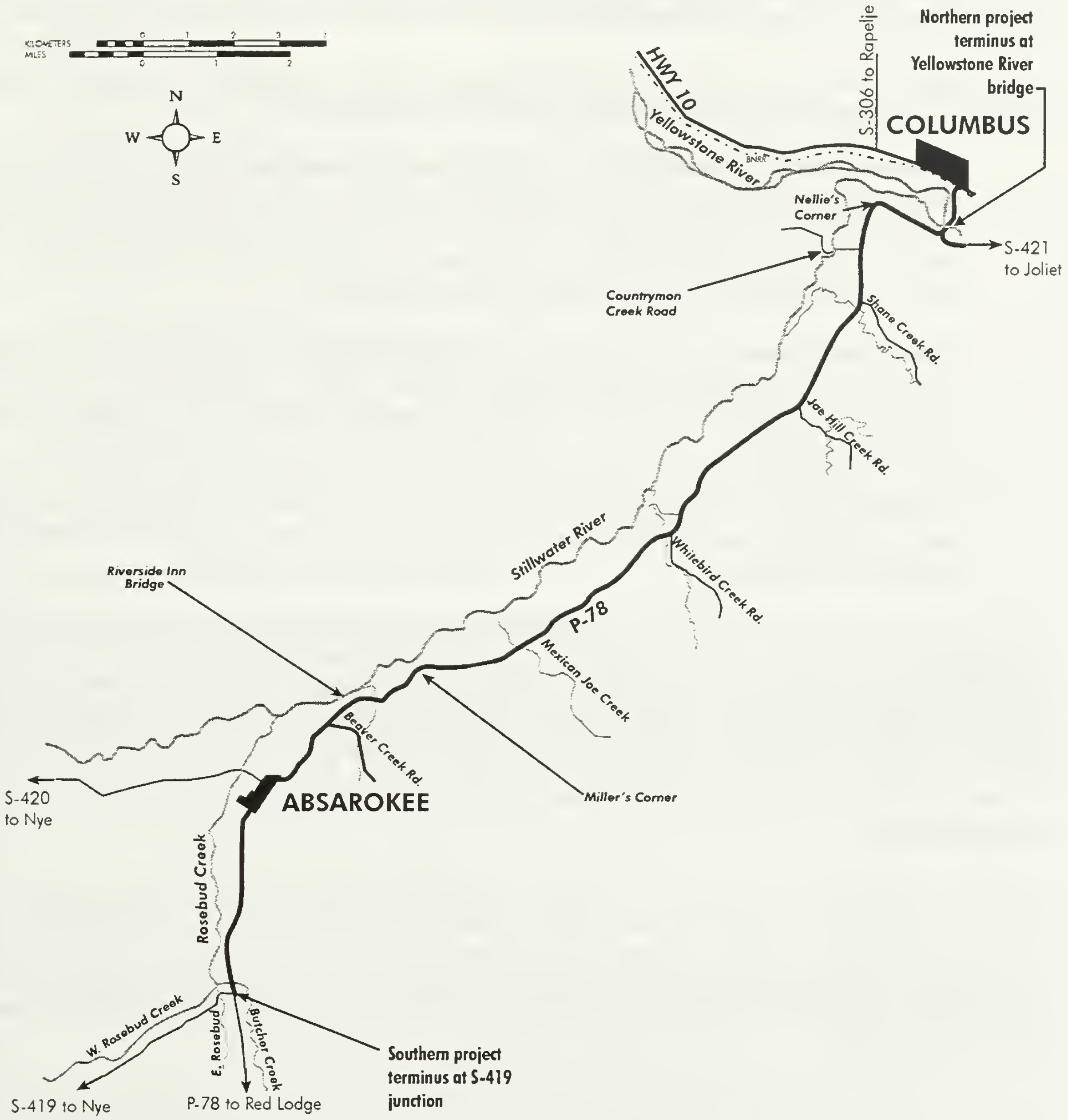

KILOMETERS
0
1
2
3
MILES
0
1
2
N
W
E
S
HWY 10
S-306 to Rapelje
Northern project terminus at Yellowstone River bridge
COLUMBUS
Yellowstone River
BNRR
Nellie's Corner
S-421 to Joliet
Countrymon Creek Road
Shane Creek Rd.
Joe Hill Creek Rd.
Stillwater River
Whitebird Creek Rd.
P-78
Riverside Inn Bridge
Mexican Joe Creek
Beaver Creek Rd.
S-420 to Nye
ABSAROKEE
Miller's Corner
Rosebud Creek
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project terminus at S-419 junction
S-419 to Nye
P-78 to Red Lodge

Figure 1.2: Project Corridor and Limits

The project is approximately 25.7 kilometers (km) (16.0± miles [mi]) long, beginning approximately 3.4 km (2.1± mi) south of Absarokee just southwest of the junction at S-419 (reference post [RP] 30.0±)* and terminating at the southern end of the Yellowstone River bridge (RP 46.0±), south of Columbus.

This document addresses impacts for the full alignment, but the project has been divided into three contracts for letting and construction purposes, including the following:

> **Absarokee North and South.** This segment of the alignment begins at the southern terminus of the proposed project, just south of the S-419 junction (RP 30.0±), continues north (excluding the Absarokee segment) and ends at RP 36.7±, which is approximately 2.2 km (1.4 mi) north of Miller's Livestock Shipping facility. The segments north and south of the Absarokee segment have a combined length of approximately 9.6 km (±6.0 mi).
>
> **Absarokee Segment.** This segment of the alignment includes Woodard Avenue, which is P-78 in the town of Absarokee. The Absarokee segment, which is approximately 1.3 km (±0.8 mi) long, begins at Absarokee High School (RP 32.1±) on the south and ends at Montana Avenue (RP 33.2±) on the north.
>
> **Columbus South.** This segment of the alignment is approximately 14.8 km (9.2± mi) long and begins at RP 36.7± and ends at RP 46.0±, at the south end of the Yellowstone River bridge on the south side of Columbus.

The Absarokee North and South project and the Columbus South project are presently scheduled for construction in 2003 or later. This schedule is contingent on the completion of the environmental process, plan preparation, and right-of-way acquisition. The Absarokee segment has been nominated as a future project. Funding for preliminary engineering is being programmed at this time. It is anticipated that the Absarokee segment would become a 2003 or later construction project.

Project History

Appendix A provides a full project chronology. In summary, this project was initially proposed by the Montana Department of Highways (now MDT) in late 1984. A public information meeting was held in Absarokee on March 23, 1989. A *Draft Environmental Assessment / Section 4(f) Statement* on the proposed project was prepared by MDT and approved for distribution in July 1989 by the Federal Highway Administration (FHWA). A formal public hearing was held in Absarokee on that draft document on September 28, 1989.

In 1990 and 1991 property owners and organized interest groups raised concerns about the proposed alignment design, impacts to historic properties (primarily irrigation ditches), farmland impacts, wetlands, and the accident history of the existing route. These concerns prompted review of the proposed project in accordance with the National Environmental Policy Act, which is a more detailed evaluation and public involvement process than required under an environmental assessment.

The notice of intent to prepare an environmental impact statement for the proposed project appeared in the *Federal Register* on January 7, 1993 (58 FR 3063), and was revised on August 31, 1998 (63 FR 168). This revision shortened the project by approximately 4.0 km (±2.5 mi) to the current terminus at the S-419 junction. The new southern project limit at S-419 represents a logical terminus from a traffic standpoint. S-419 was improved to the intersection with P-78 in 1998. The dominant movement at this junction is from eastbound S-419 to northbound P-78, and southbound P-78 to westbound S-419; thus traffic volumes on P-78 decrease south of the S-419 junction (that is, there is more traffic on S-419 than on southbound P-78).

---

* Reference post is equivalent to mile post.

Following publication of the revised notice of intent in 1998, a series of field reviews, public meetings, agency coordination meetings, work groups, and meetings with individual property owners were held to:

- discuss the issues brought up during the earlier environmental assessment process,
- review and comment on the proposed alternatives to be included in the environmental impact statement, and
- refine the scope of the project.

Chapter 7 summarizes these coordination efforts.

1.2 PURPOSE OF THE PROPOSED PROJECT

The primary objective of the proposed action is to provide a facility with an updated design in order to:

- improve safety,
- accommodate increasing travel demands, and
- improve efficiency of travel throughout the corridor.

Highway operations and safety can be enhanced by providing an upgraded facility that meets Montana's current design standards. This could include flattening horizontal and vertical curves, adding shoulders, maintaining clear zones, flattening side slopes, and improving the roadway surface to better accommodate increasing traffic volumes and loads. These types of improvements are proposed to provide a modern highway facility compatible with the surrounding built and natural environments. This project does not have as an objective the intent to induce population growth, economic development, or increased traffic.

1.3 NEED FOR THE PROPOSED PROJECT

According to the American Association of State Highway and Transportation Officials (AASHTO), a major part of the rural highway system consists of rural arterials, which range from two-lane roadways to multilane, divided, controlled-access arterials. Principal arterials include the interstate system and most rural freeways. Minor rural arterials link urban centers to larger towns and are spaced to provide a relatively high level of service to developed areas of a state. With this understanding, P-78 is designated under the MDT Functional Classification System as a minor arterial, as is covered by MDT's *Geometric Design Standards for Non-NHS Primary Roads* (February 1994).

Roadway Deficiencies

The existing highway does not meet current MDT standards for rural minor arterials. P-78 is a narrow and winding route that is characterized by sharp curves, steep side slopes, and rolling grades (see Figure 1.3). The roadway was reviewed in 1993 for a potential overlay and widening project, but it was determined that only 25 to 30 percent of the existing horizontal alignment would meet current standards and could be salvaged. Many of the existing vertical grade changes result in substandard conditions on approximately 90 percent of the vertical alignment as well.

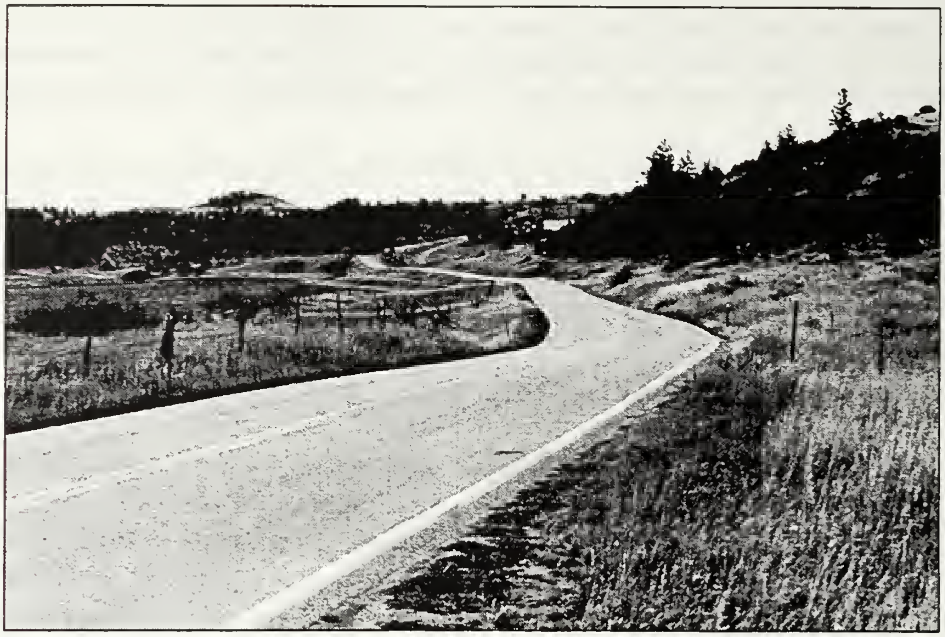


Figure 1.3: View of Characteristic Sharp Curves and Rolling Grades along P-78.

The driving surface is also substandard in both width and physical condition. The roadway has no shoulders, and it has a deteriorating surface and subgrade. The two-lane facility was originally constructed in 1935 as a then-standard 6.7 m (±22 ft) rural road with low traffic volumes. Although the roadway width along most of the corridor is about 6.7 m (22 ft), in some places it narrows to only about 5.8 m (19 ft). AASHTO recommends a minimum of two 3.6 m (12 ft) lanes with shoulders.

This segment of P-78 was last improved in 1945 under a defense access/raw materials contract to haul materials from the mines in the area. In 1957 the road was widened to 8.5± m (28± ft) at the northernmost end, from RP 45.8± to RP 46.0±. An additional safety-related project completed in 1984 provided some signing and slope flattening at Nellie's Corner, from RP 44.7± to RP 45.0±. An overlay of the roadway surface was completed in 1994 from Butcher Creek to Columbus.

The surface treatment and gravel base are considered inadequate for current loads. The highway sufficiency rating system determines the adequacy of roadway segments by taking into consideration the highway foundation and surface, drainage, safety, and capacity. With a maximum possible rating of 100, a highway sufficiency rating of less than 60 is considered deficient, and a rating of less than 40 is considered critically deficient. A 1981 MDT sufficiency study gave this section of P-78 a rating of 41.2. Due to the lack of an adequate roadway base and the extent of deterioration, complete reconstruction is required.

There are seven bridge structures along the proposed project. The sufficiency rating for a bridge structure is based on its structural adequacy and safety, necessity for public use, serviceability, and functional obsolescence. The rating is used to determine a structure's adequacy both with regard to its load-carrying capabilities and its ability to accommodate the volume of traffic the road serves. The rating was developed by the Federal Highway Administration and is one of the parameters used in allocating federal funding for the Highway Bridge Replacement and Rehabilitation Program. It provides a basis to establish eligibility and priority for replacing or rehabilitating bridges. In general, the lower the rating (on a scale from 0 to 100), the higher the priority. Table 1.1 provides the sufficiency rating developed for each of these structures during recent inspections. Based on this appraisal, each structure is functionally obsolete and eligible for replacement, as indicated.

Table 1.1: Structural Inventory and Assessment

Feature Crossed	Structure	Location	Year Built	Sufficiency Rating	Status
Butcher Creek	Concrete bridge	RP 30.0±	1935	45.6	Functionally obsolete and eligible for replacement
Stockpass	Timber bridge	RP 30.8±	1935	52.6	Same as above
Beaver Creek	Timber bridge	RP 34.7±	1943	47.6	Same as above
Whitebird Creek	Concrete bridge	RP 39.4±	1943	43.7	Same as above
Joe Hill Creek	Timber bridge	RP 41.8±	1935	47.6	Same as above
Irrigation canal	Canal	RP 43.3±	1935	46.1	Same as above
Shane Creek	Timber bridge	RP 43.4±	1943	52.6	Same as above

Source: MDT, 1998.

Safety Concerns

The low highway sufficiency rating described above for this section of roadway also indicates the need to improve safety. The poor horizontal and vertical alignments result in inadequate sight distances, limited passing locations, difficult property access, and inability to accommodate higher travel speeds. This, combined with the narrow width, steep side slopes, and deteriorating surface condition of the roadway, contributes to the safety issues throughout the corridor.

Within Absarokee safety issues on P-78 also include pedestrian movement on Woodard Avenue, the main street in town. The sidewalks on Woodard Avenue in Absarokee are discontinuous and deteriorating, and vary in width (see Figure 1.4).

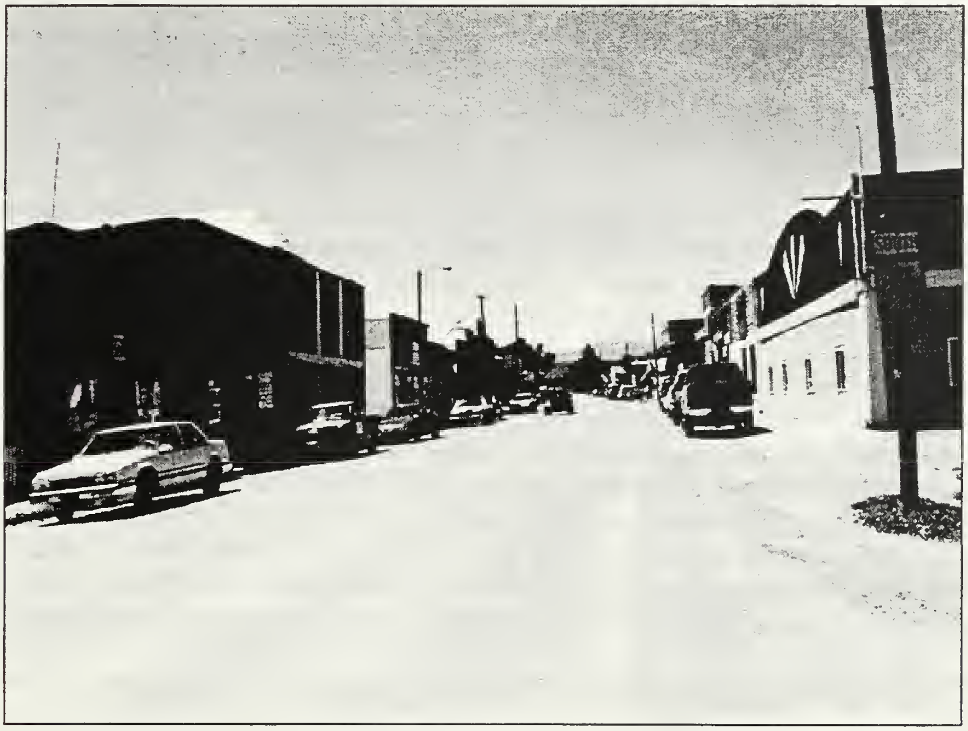


Figure 1.4: View of Discontinuous Sidewalks along Woodard Avenue (P-78).

Accident data for the three years (mid-1995 through mid-1998) documents 161 reported accidents in the corridor. During this period the average accident rate for this segment of P-78 was 5.43 accidents per million vehicle miles (MVM), almost four times higher than the rural statewide average (1995–1997) of 1.38 per MVM for similar type facilities. Figure 1.5 provides a mile-to-mile breakdown of the occurrence of accidents over this three-year period. The numbers down the right side of the map indicate the number of accidents within each one-mile roadway segment to the north. Table 1.2 summarizes accidents by severity over the three-year period; as shown, approximately one-third of all accidents resulted in injury.

Table 1.2: Accidents by Severity (mid-1995 to mid-1998)

Accident Type	1995	1996	1997	Total Number	Percentage of Total
Fatal	0	0	0	0	0%
Injury	15	21	17	53	33%
Property	29	42	37	108	67%
Total	44	63	54	161	100%

Source: MDT, 1998.

Table 1.3 provides a summary of the most prevalent accident types, as a percentage of total accidents over the three-year period.

Table 1.3: Accident Types (mid-1995 to mid-1998)

Accident Type	Percentage of Total
By Location:	
Accidents in, or related to, an intersection	18%
Accidents related to a driveway	4%
Accidents at no junction	78%
Contributing Factors:	
Weather — icy/slushy conditions	41%
Animal — wild or domestic	16%
Drugs/Alcohol	11%
Nighttime	37%
Number of vehicles involved:	
One vehicle	70%
More than one vehicle	30%

Source: MDT, 1998.

Approximately 70 percent of the accidents over this three-year period involved only one vehicle and did not occur at a junction. As shown in Table 1.3, these accidents were dispersed throughout the corridor, further substantiating the need to address safety concerns and to improve the horizontal and vertical alignment throughout the entire corridor.

Although accidents occur throughout the corridor, the accident analysis showed a concentration of accidents at several locations. Absarokee and Nellie's Corner had the highest concentrations. At the Absarokee and Columbus public meetings, local residents identified these same locations as high accident areas, as well as Miller's Corner (a roadway curve 2.2 km [1.4 mi] south of West Whitebird Creek Road), the Whitebird Creek Road intersection, and the Countryman Creek Road intersection. In addition to roadway geometry, such as sharp curves, residents identified icing and collisions with deer as contributing factors. The analysis of reported accidents substantiates these claims, with findings of 41 percent of all reported accidents occurring under icy or slushy conditions, and 13 percent involving deer collisions.

The specific safety-related concerns that have been raised through public and agency coordination include the following:

- Sharp and blind curves
- Narrow roadway width / lack of shoulders
- Fatal accidents
- Deer strikes
- Speed
- Approaches / access points
- No passing zones
- Emergency vehicle safety
- School bus operation
- Truck traffic
- Winter shading and icing
- Slow-moving agricultural equipment

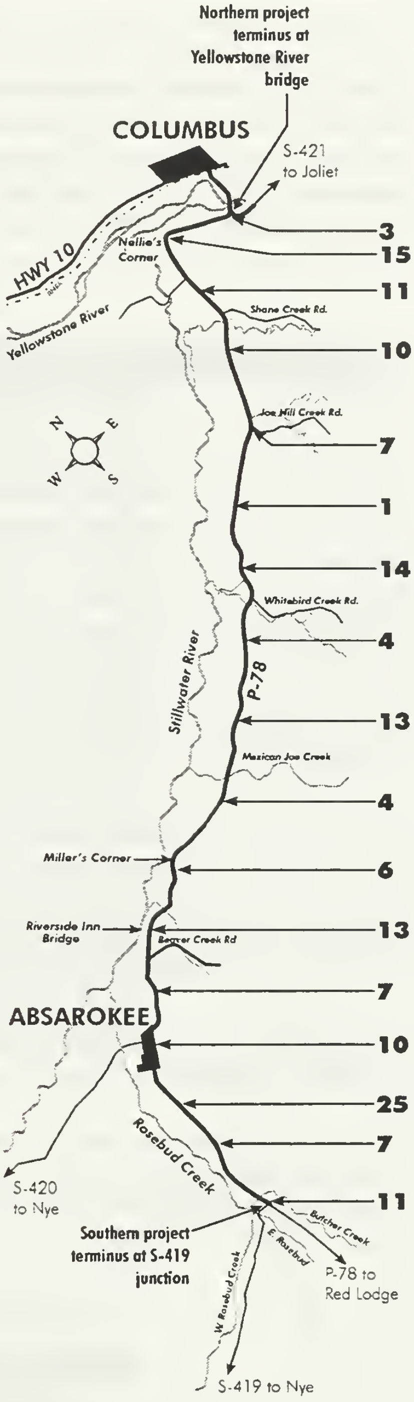
This project is proposed to reduce the potential for accidents by improving the horizontal and vertical alignments, flattening side slopes, and widening the roadway, as well as reinforcing driver expectancy by providing a uniform design consistent with current design standards.

Travel Demand and Roadway Capacity

Regardless of roadway improvements, average daily traffic (ADT) along this segment of P-78 is anticipated to grow at an average of 3.5 percent annually over the next 20 years. This growth rate is based on current growth trends in the area. At this rate, ADT would increase from the current level of 1,750 vehicles per day, to over 3,800 by the design year 2021 (20 years after construction). Commercial truck use constitutes over 7 percent of this daily volume.

Traffic conditions on a facility such as P-78 are commonly defined using the level of service (LOS) concept. FHWA's 1998 *Highway Capacity Manual* defines LOS for two-lane roadways based on average travel speed, percent time delay, and capacity utilization. According to the manual, traffic operations on two-lane, two-way highways are unique because passing is possible only when there is no traffic in the opposing lane. Passing demand increases rapidly as traffic volumes increase, while passing capacity in the opposing lane declines as volumes increase.

Thus, unlike other types of uninterrupted flow facilities, on two-lane highways normal traffic flow in one direction influences flow in the other


Northern project terminus at Yellowstone River bridge
COLUMBUS
S-421 to Joliet
3
15
Nellie's Corner
HWY 10
Yellowstone River
11
Shane Creek Rd.
10
Joe Hill Creek Rd.
7
N
E
W
S
1
14
Whitebird Creek Rd.
4
P-78
Stillwater River
13
Mexican Joe Creek
4
Miller's Corner
6
Riverside Inn Bridge
Beaver Creek Rd
13
7
ABSAROKEE
10
25
Rosebud Creek
7
S-420 to Nye
11
Southern project terminus at S-419 junction
Butcher Creek
E. Rosebud
W. Rosebud Creek
P-78 to Red Lodge
S-419 to Nye

Source: Compiled by BRW from MDT data, 1998.

Figure 1.5: Three-Year Accident History per Segment (Mid-1995 to Mid-1998)

direction. Motorists are forced to adjust their individual travel speeds as volume increases and the ability to pass declines. Two traffic stream characteristics — average travel speed and percent time delay — are used as operational measures to describe the quality of service provided to motorists on a two-lane highway. Six LOS categories ranging from A to F are used to describe traffic operations. LOS A represents the best conditions, and LOS F represents the worst. Table 1.4 provides a summary of the LOS categories. MDT uses LOS B as the desirable design criteria for roadway reconstruction projects in flat to rolling terrain, and LOS C in mountainous terrain.

Table 1.4: Level of Service (LOS) Definitions

Level of Service	Definition
A	Motorists are able to drive at their desired level of speed, resulting in average speeds of approximately 60 mph. Passing demand is well below passing capacity, and almost no platoons of three or more vehicles are observed. Drivers are delayed no more than 30% of the time by slow-moving vehicles. A maximum flow rate of 420 vehicles per hour (vph) (total in both directions) may be achieved.
B	Speeds of 55 mph or slightly higher are expected on level terrain. Passing demand needed to maintain desired speeds becomes significant and approximately equals the passing capacity at the lower boundary of LOS B. Drivers are delayed up to 45% of the time on average. Service flow rates of 750 vph (in both directions) can be achieved. Above this flow rate, the number of platoons forming in the traffic stream begins to increase dramatically.
C	Average speed still exceeds 52 mph on level terrain, even though unrestricted passing demand exceeds passing capacity. At higher volume levels, chaining of platoons and significant reductions in passing capacity begin to occur. While traffic flow is stable, it is becoming susceptible to congestion due to turning traffic and slow-moving vehicles. Time delays are up to 60% of the time, and a service flow rate of up to 1,200 vph (in both directions) can be accommodated.
D	Average speeds can still exceed 50 mph. Passing demand is very high, while passing capacity approaches zero. Mean platoon sizes of 5 to 10 vehicles are common. Turning vehicles and/or roadside distractions cause major shock-waves in the traffic stream. Motorists are delayed up to 75% of the time. Maximum service flow rates of 1,800 vph (in both directions) can be maintained.
E	Average speeds drop below 50 mph, and the time delay is greater than 75%. Passing is virtually impossible, and platooning becomes intense when slower vehicles or other interruptions are encountered. Maximum service flow rates of 2,800 vph are reached at this level.
F	This represents heavily congested flow, with traffic demand exceeding capacity. Volumes are higher than capacity, and speeds are below capacity speed. LOS E is seldom attained over extended sections on level terrain as more than a transient condition; most often, perturbations in traffic flow as LOS E is approached cause a rapid transition to LOS F.

Source: FHWA, *Highway Capacity Manual*, 3rd ed., 1998 Update. p. 8-6.

Based on the existing roadway and traffic conditions in the corridor, P-78 currently operates at LOS C. Table 1.5 shows the current level of service would deteriorate and be at LOS D by 2021. MDT estimates that approximately 689 vehicles per hour will be traveling in the peak direction during the peak period by year 2021.

Table 1.5: Existing and 2021 Level of Service (LOS)

Year	ADT	LOS
Existing (1998)	1,750	C
Projected (2021)	3,860	D

Source: MDT, 1999.

To provide an acceptable level of service (LOS B/C) in the future, roadway capacity improvements are needed to accommodate the projected increase in traffic and travel demand. These improvements are also needed to accommodate today's traffic.

Roadway Use

P-78 serves a wide range of travel needs, including access to local residential areas, ranching and farming operations, recreational activities, schools, and community facilities in Absarokee and Columbus. The route also serves as a connection to the nearby communities of Fishtail, Dean, and Nye through the junction with S-419 at the south end of this proposed project. Currently, pedestrian and bicycle use within the corridor is generally limited to Absarokee. There was no great interest voiced at the public meetings or by bicycle organizations, such as Adventure Cycling Association, in expanding pedestrian or bicycle use outside of Absarokee.

P-78 is used as access to local and regional recreational activities, such as fishing, hunting, hiking, and camping. Three formal fishing access sites along the Stillwater River are served by P-78 — Fireman's Point, Swinging Bridge, and Whitebird. P-78 also provides a connection from I-90 to U.S. 212, accommodating travel to the recreation and resort town of Red Lodge and the northeast gateway to Yellowstone National Park (refer to Figure 1.1). P-78 and S-419 provide additional access to the Custer National Forest and the Woodbine Campground (west of Nye on S-419), which is a gateway to the Absaroka-Beartooth Wilderness Area. The U.S. Forest Service (USFS) has spent nearly $700,000 on improvements to the Woodbine Campground over the last two years. This has historically been a highly used area, but the Forest Service indicates that visitor numbers have been increasing exponentially with the trailhead and facility improvements and as the area has recovered from the fires experienced in 1988. During the summer months, with the increased tourist and recreational traffic, there is an increase in recreational vehicles using this route. An increase in this type of traffic, along with the narrow winding roadway, limited passing areas, and lack of turnouts for slow-moving vehicles, results in congestion along this corridor.

In addition to access to recreational areas, P-78 provides access to mining facilities in the area. The Stillwater Mine, located about 8 km (5 mi) west of Nye, contains the largest concentration of platinum-group elements known to exist in the United States. Chromite was mined from the complex from the early 1900s through 1961, and platinum is currently being mined. The Stillwater Mine has recently expanded operations and currently employs about 850 people. To reduce the amount of commuter traffic in this corridor, the mine offers bus service between Billings and the mine. This route includes stops in Columbus, Absarokee, and Fishtail. Service consists of private, 40-passenger buses making 15 round-trips to accommodate the shift changes between 3:00 and 6:00 A.M. and 12:00 and 6:00 P.M. In addition to the mine commuter traffic, the mine also runs supply and ore trucks from the mine to Columbus. The mine runs an average of 15 truck-trips per day, carrying 2,000 to 3,000 pounds of ore to the facility in Columbus. The mine is in the process of locating a central supply facility in Columbus. With this new facility, individual suppliers will no longer need to travel to the mine. Consequently, it is anticipated that the number of daily supply trips on P-78 to the mine will be reduced. Figure 1.6 shows the major traffic movement from eastbound S-419 to northbound P-78, and southbound P-78 to westbound S-419.

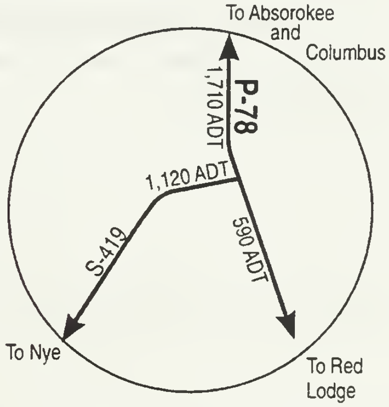


Figure 1.6: Traffic Movement at S-419

Traffic volumes drop from approximately 1,710 ADT north of S-419 to 590 ADT just south of that junction. This traffic pattern can likely be attributed to the truck and employee traffic associated with the Stillwater Mine. Due to the increase in traffic associated with the mine, S-419 from the intersection with P-78 was improved recently.

School buses serving Columbus and Absarokee schools make at least 21 scheduled stops along this route. The Absarokee school district has 10 stops between S-419 and the district boundary approximately 3.6

km (2.2 mi) north of North Stillwater Road. The Columbus school district has 11 scheduled stops between the Yellowstone River bridge and a turnaround near Mexican Joe Creek. Four of the stops on the Columbus route occur in the vicinity of Nellie's Corner. School bus safety issues voiced by local residents relate to poor sight distance for bus stops, limited locations to pass school buses, and lack of school bus turnaround areas.

Farm vehicles also commonly use this route for local and regional transport of agricultural products and for farm support services. These vehicles range from small tractors and ditch equipment to large combines and cattle trucks. These large, slow-moving vehicles often cause long traffic queues, resulting in travel delays or unsafe passing.

Improvements to P-78 would provide a facility capable of handling projected traffic demands and loads. It would also provide an opportunity to improve conditions and safety for school bus and farming operations. Improvements to P-78 would further enhance this route to the mine.

Travel Efficiency

Travel efficiency for the P-78 corridor relates to two factors: (1) travel time, and (2) roadway system linkage.

Due to the current roadway conditions of sharp curves and poor sight distances, drivers are frequently slowing to safely negotiate sections of the highway. A more uniform and constant rate of speed would improve travel time and enhance safety.

In terms of roadway system linkage, P-78 provides the main connection between Absarokee and Columbus, as well as the Stillwater Mine and the communities of Fishtail and Dean. Many of the mine workers commute long distances. P-78 improvements would further complement the investment on S-419 and improve the efficiency of that route.

In summary, improvements to P-78 would address current safety issues and roadway deficiencies; improve roadway capacity; and provide an opportunity to improve travel efficiency and access for roadway users.

CHAPTER 2. ALTERNATIVES

Through the scoping process, MDT gathered input from agencies and interested publics to develop a number of alternatives to address the purpose of and need for the project, as well as to establish the criteria to be used in evaluating the alternatives. Several alternatives that could potentially meet the purpose of and need for the project were considered. A number of these alternatives were proposed by the public and/or agencies involved in earlier studies in the corridor, while others evolved during more recent coordination and public participation.

This chapter presents the MDT design standards, and it describes the process for how the preliminary conceptual alternatives were analyzed and for how the final alternatives were developed. Only the conceptual alternatives that could potentially satisfy the purpose of and need for the project were fully developed, including design details such as potential alignments, right-of-way limits, and construction costs. These alternatives have been determined to be "reasonable" in light of their costs and benefits, and their sensitivity to the surrounding built and natural environments. This chapter also describes alternatives that were previously considered but were eliminated.

2.1 ALTERNATIVE DEVELOPMENT AND EVALUATION

Project Goals

During the analysis of the conceptual alternatives, the agencies and general public involved in the project developed the following list of goals for the proposed project:

- Minimize impact to agricultural land.
- Minimize impact to irrigation facilities.
- Minimize right-of-way purchases and relocations.
- Avoid or minimize impacts to cultural, historic, and natural resources (including floodplains).
- Provide cost-effective improvements.
- Minimize maintenance costs.

MDT Design Standards

MDT has adopted minimum design standards to ensure the wise investment of taxpayer dollars and to provide safe and efficient facilities for roadway users. MDT's *Geometric Design Standards for Non-NHS Primary Roads* (1994) identifies typical design features for primary rural highways, including the following:

Roadway Pavement Width — A standard roadway pavement width of two 3.6 m (12 ft) lanes and 1.2 m (4 ft) shoulders, for a total of 9.6 m (32 ft) for a rural primary route.

Design Speed — A horizontal and vertical alignment based on a 100 km/h (60 mph) design speed through level terrain.

Grades — A vertical alignment designed using a 3 percent maximum grade in flat terrain, and a 4 percent maximum grade in rolling terrain.

Curves — A horizontal alignment designed with 394 m (1,293 ft) radius maximum curves.

Sight Distance — A desirable minimum stopping sight distance of 210 m (689 ft), and a desirable minimum passing sight distance of 675 m (2,215 ft).

Right-of-Way — A minimum right-of-way requirement of 25 m (80 ft) on either side of the proposed centerline.

Urban Section — Two 3.6 m (12 ft) lanes, 3.0 m (9.8 ft) parking lanes, and 2.1 m (7 ft) sidewalks, for a total of 17.4 m (57 ft)

Rumble Strips. Rumble strips are proposed for both shoulders to improve vehicular safety. Based on MDT design standards, the rumble strips are offset from the travel lanes by 15 cm (6 in) and the rumble strip is 0.3 m (1 ft) wide. Where significant bicycle usage is documented, MDT would consider reducing the rumble strip offset to 10 cm (4 in) from the shoulder stripe and reducing the rumble strip width to 20 cm (8 in), where the shoulder width is 1.2 m (4 ft) or less. Since there is little bicycle usage outside Absarokee, the P-78 corridor design for rumble strips does not deviate from the MDT standard.

Accommodating Pedestrians and Bicycles. Bicycle and pedestrian concerns were addressed for Absarokee by providing sidewalks. For the remainder of the corridor, providing a separate bicycle path was not considered reasonable given the public and agency desire to minimize impacts (relocation, farmland, historic, and environmental) due to additional right-of-way requirements.

MDT considers roads with 1.2 m (4 ft) shoulders adequate for routes used by 50 bicyclists per day, for 10 days a month, over three consecutive months; or 20 bicyclists per day over three months. As stated previously, bicycle usage is even lower than this. The provision of any shoulders would improve conditions for both pedestrians and bicyclists.

Other Design Considerations. The standards listed above were used as the baseline for developing alternatives. However, FHWA and MDT analyzed various cross section widths, right-of-way widths, and alignment alternatives that would maintain safety while maximizing the benefit of the money spent on the improvements and minimizing impacts.

During scoping for this proposed project, area residents expressed a great deal of concern about the width of the proposed roadway. They expressed a desire for safety improvements, but did not want to create a roadway that would encourage higher speeds or require substantial amounts of new right-of-way. Many pointed to the recently reconstructed Nye Road (S-419 from P-78 to the Woodbine Campground) as an example of an acceptable solution. The Nye Road project was designed to an 80 km/h (50 mph) design speed; it increased travel lane width from 3.4 m (11 ft) to 3.6 m (12 ft), added shoulders, and improved roadway geometrics, including flattening curves. Nye Road was reconstructed to a 10.4 m (34 ft) wide paved roadway surface between P-78 and Fishtail, 9.0 m (30 ft) wide west of Fishtail (RP 6.0) and changing to 8.4 m (28 ft) wide from west of Fishtail to Dean, with the ability to accommodate a future upgrade to 10.4 m (34 ft).

Due to these concerns, MDT agreed to be flexible in their standard right-of-way requirements. MDT's minimum standards call for right-of-way on a rural arterial to extend 25 m (80 ft) on either side of the project centerline. For this proposed project, MDT waived that requirement in favor of a 20 m (65 ft) minimum. Where special circumstances warranted (such as sensitive sites or resources) even less right-of-way is proposed. Other areas have more than the minimum (20 m / 65 ft) to provide safer side slopes and adequate clear zones. Right-of-way limits were discussed with individual property and irrigation ditch owners, and they were adjusted to the greatest amount feasible to provide an improved facility while minimizing impacts and maintaining a degree of consistency for driver expectancy.

Development and Evaluation of Alternatives

Initially four conceptual alternatives were considered — an alternative not to undertake any improvements, a transportation system management (TSM) alternative (which would maximize the efficiency of the existing system by providing a wide variety of mobility options and operational system improvements), an alternative to upgrade the existing roadway, and an alternative to construct a new alignment outside the existing roadway corridor. Two of these alternatives (the TSM alternative and the new alignment) were dismissed from further consideration after evaluating them against the purpose of and the need for the project (see section "2.5 Alternatives Considered but Eliminated from Detailed Analysis"). The alternative not to undertake any improvement was retained as a No-Build Alternative to provide a baseline comparison for the Build Alternatives. It was determined that upgrading the existing roadway would meet the purpose of and need for the project by improving safety, accommodating increasing travel demands, and improving the efficiency of travel throughout the corridor.

Alternatives for upgrading the existing roadway were then developed by identifying alignments and roadway cross sections (e.g., the number of lanes and shoulder widths) that were applicable to this corridor. These alternatives were developed and assessed with input from the public and local officials and agencies.

Alignment Alternatives at Nellie's Corner. In developing alternatives that would address the project goals, the proposed alignments remained fairly near the existing roadway except for the segment of P-78 between Shane Creek and the Yellowstone River bridge, also known as Nellie's Corner. At this location five alternative alignments were developed as part of the upgrade alternative to provide safety improvements and minimize impacts to surrounding properties. All five alignments (identified as A through E) would provide safety and capacity improvements; however, in consultation with the public and agencies, two alignments (C and E) were eliminated from further consideration due to cost (see section 2.5).

Cross Sections. The next step was to look at detailed cross sections and alignment alternatives, which were evaluated against the purpose of and need for the project to provide a safe and efficient roadway. The cross section alternatives that were considered included rural highway cross section widths of 8.4 m (28 ft), 9.6 m (32 ft), 10.8 m (36 ft), and 12.0 m (40 ft). These typical cross sections all had two 3.6 m (12 ft) travel lanes; however, the paved shoulder width varied from 0.6 m (2 ft) to 2.4 m (8 ft). Based on a comparison of the safety and capacity characteristics of these alternatives (see Appendix B), the 8.4 m (28 ft) and the 12.0 m (40 ft) cross sections were eliminated. The screening of these alignments and typical sections resulted in identifying the 9.6 m (32 ft) and 10.8 m (36 ft) cross sections with alignments A, B, and D as viable alternatives that warranted further evaluation.

2.2 ALTERNATIVES CONSIDERED

This section describes an alternative to take no action, plus alternatives that would upgrade or reconstruct the existing P-78 roadway from S-419 to the Yellowstone River bridge. The Build Alternatives would best satisfy the purpose of and need for the project by addressing safety concerns and improving the efficiency of the highway, while also providing a design that would be sensitive to built and natural environments. This section identifies specific design components for the Build Alternatives. Two cross section widths are considered — a 9.6 m (32 ft) width and a 10.8 m (36 ft) width. For each cross section, three alignment alternatives are evaluated — A, B, and D. To differentiate the alternatives, the 9.6 m (32 ft) cross section alignments are labeled A1, B1, and D1, and the 10.8 m (36 ft) cross section alignments are labeled A2, B2, and D2. (The alignment alternatives C and E at Nellie's Corner, which were previously considered but eliminated, are described on page 29.) A climbing lane is proposed under all

Build Alternatives along the incline south of Absarokee to provide areas so faster moving vehicles could pass slower moving vehicles. The length of the climbing lane section would be 1.5 km (0.9 mi).

Based on the environmental analysis, MDT has recommended Alternative B1 as the Preferred Alternative. The final selection of an alternative will not be made until public comments on this draft document have been fully evaluated and responded to in a final document.

No-Build Alternative

The No-Build Alternative would provide no geometric improvements (design, capacity, or safety) to the existing P-78 facility from S-419 to the Yellowstone River bridge. The driving surface of the existing facility does not meet current MDT standards for a rural minor arterial for either width or physical condition. It is assumed that maintenance of the existing facility would continue under this alternative. Because this alternative would not meet the purpose of and need for the project, it is not the preferred alternative; rather, it is used as a baseline for comparing the Build Alternatives.

Build Alternatives — 9.6 m (32 ft) Cross Section

This cross section would consist of two 3.6 m (12 ft) travel lanes and 1.2 m (4 ft) shoulders (see Figure 2.1). This typical section represents MDT's standard minimum width for a rural primary roadway, considering current and projected travel volumes and balancing factors such as capacity, cost, and safety. The 9.6 m (32 ft) roadway standard would be an improvement over existing facilities and would be safer for pedestrians and bicyclists because it would provide 1.2 m (4 ft) shoulders. However, if a 0.3 m (1 ft) rumble strip that was offset from the travel lane by 0.15 m (0.5 ft) was used, the maximum usable area in the shoulders for bicyclists would be 0.8 m (2.5 ft).

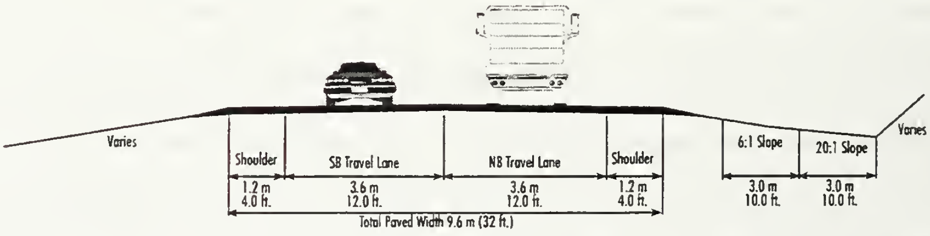


Figure 2.1: 9.6 m (32 ft) Rural Typical Section Alternative

Alternative A1. Under this alternative P-78 from S-419 to the Yellowstone bridge south of Columbus would be reconstructed as a 9.6 m (32 ft) wide roadway, except for a climbing lane south of Absarokee and the portion of highway through the town of Absarokee, as described below. The replacement of bridges including the functionally obsolete bridges identified earlier, are also described below.

The segment from S-419 to Shane Creek (just south of Nellie's Corner) would require numerous changes to the vertical and horizontal alignments, but the new alignment would follow the existing alignment to the greatest extent possible. At Nellie's Corner the alignment would shift to the east, gradually curving east through Shane Ridge at its western tip or "knob," as described below. The estimated construction cost (excluding new right-of-way) for this alternative would be $15,741,200 in 1999 dollars.

Climbing Lane South of Absarokee — Based on an evaluation of the preliminary alignment and profile in this segment, a climbing lane is proposed along the incline south of Absarokee to provide areas where faster moving vehicles could pass slower moving vehicles climbing this hill. The addition of this climbing lane would add a full 3.6 m (12 ft) lane in the southbound direction (from RP 30.9± to RP 31.9±), resulting in a total paved road width of 13.2 m (44 ft), as illustrated in Figure 2.2. The length of the climbing lane section would be 1.5 km (0.9 mi).

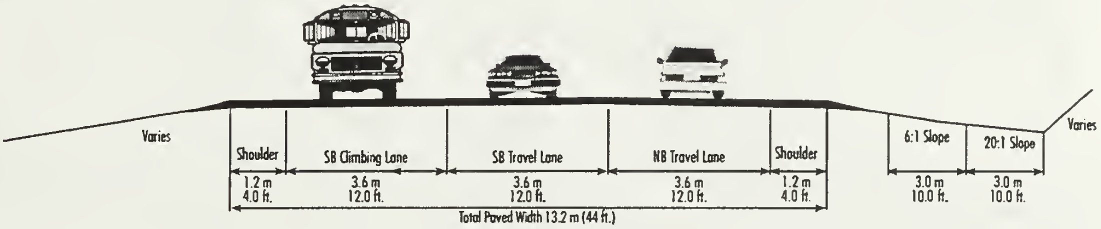

Varies
Shoulder
SB Climbing Lane
SB Travel Lane
NB Travel Lane
Shoulder
6:1 Slope
20:1 Slope
Varies
1.2 m 4.0 ft.
3.6 m 12.0 ft.
3.6 m 12.0 ft.
3.6 m 12.0 ft.
1.2 m 4.0 ft.
3.0 m 10.0 ft.
3.0 m 10.0 ft.
Total Paved Width 13.2 m (44 ft.)

Figure 2.2: 9.6 m (32 ft) Rural Typical Section with 3.6 m (12 ft) Climbing Lane

Absarokee Typical Section(s) — Two additional typical sections would be constructed in Absarokee: a transition section on the south side of town to include a sidewalk along the east side of the roadway, and an urban typical section (including curb and gutter, parking lanes, and sidewalks) through town. Figure 2.3 illustrates the length and location of the proposed sections. Figure 2.4 and Figure 2.5 illustrate these sections. The typical sections were developed through meetings with local officials, representatives of the Absarokee Water and Sewer District, school officials, and the Stillwater County Sheriff's Department.

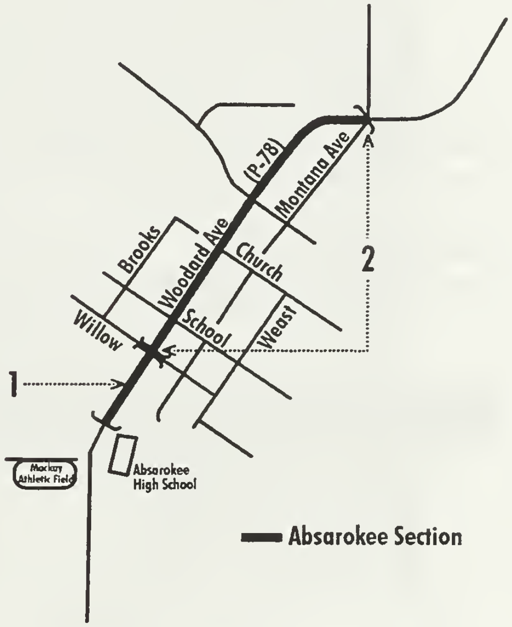

(P-78)
Montana Ave
Brooks
Woodard Ave
Church
Willow
School
Weast
1
2
Mackay Athletic Field
Absarokee High School
Absarokee Section

Figure 2.3: Absarokee Section Limits

Section 1 is outside the town limits, from the northernmost driveway access to the Absarokee High School north to Willow Street. A 2.1 m (7 ft) sidewalk with curb and gutter, plus a 3.0 m (9.8 ft) parking lane, would be provided only on the east side of the street. This sidewalk would connect the elementary school to the high school. No parking lane and sidewalk would be required on the west side due to the limited amount of adjacent development.

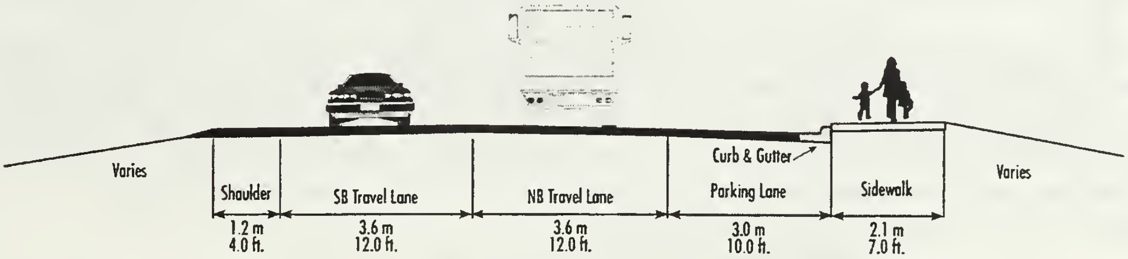

Varies
Shoulder
SB Travel Lane
NB Travel Lane
Curb & Gutter
Parking Lane
Sidewalk
Varies
1.2 m 4.0 ft.
3.6 m 12.0 ft.
3.6 m 12.0 ft.
3.0 m 10.0 ft.
2.1 m 7.0 ft.

Figure 2.4: Absarokee Section 1

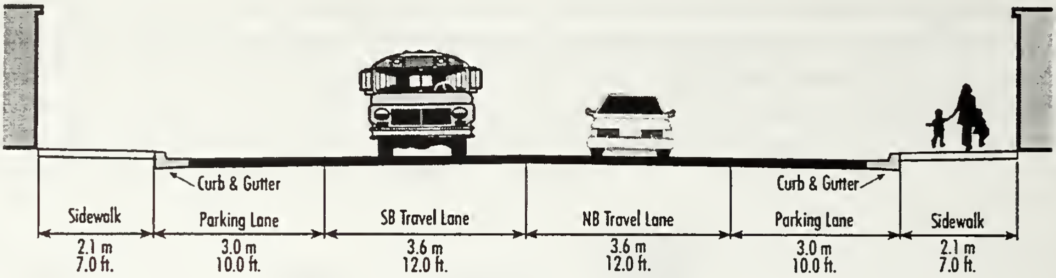


Figure 2.5: Absarokee Section 2

Section 2 follows Woodard Avenue (P-78) from Willow Street to Montana Avenue within the town limits, and there is development on both sides of the street. Consequently, the typical section proposed for this segment includes a 2.1 m (7 ft) sidewalk with curb and gutter, and a 3.0 m (9.8 ft) parking lane on both sides of the street. All improvements associated with this typical section would be accommodated within the existing right-of-way.

The future design for both these Absarokee typical sections would incorporate stormwater drainage and water system improvements. The stormwater drainage improvements would include drainage retention ponds outside the existing highway right-of-way. The size and location of these facilities would be determined during the detailed design phase of this project. As needed, additional environmental compliance would be completed on these facilities.

Structure Replacements — Within the corridor five bridges, four irrigation crossings and one stockpass would be replaced under Alternative A1. See Table 2.1 for the specifics on these structure replacements.

Table 2.1: Structure Replacements Proposed

Structure Location (RP)	Structure Type	Existing Material	Replacement Materials
30.2±	Bridge – Butcher Creek	Timber	Reinforced concrete bridge w/ steel pile foundation
30.7±	Irrigation Crossing	Timber	600 mm RCP
31.1±	Stockpass	Timber	2100 mm CSP stockpass/drain
34.7±	Irrigation Crossing	Timber	2400 mm x 1200 mm concrete box
34.5±	Irrigation Crossing	Timber	2400 mm x 1200 mm concrete box
34.9±	Bridge – Beaver Creek	Timber	Reinforced concrete bridge w/ steel pile foundation
39.5±	Bridge – Whitebird Creek	Concrete	Reinforced concrete bridge w/ steel pile foundation
42.0±	Bridge – Joe Hill Creek	Timber & Concrete	Reinforced concrete bridge w/ steel pile foundation
43.4±	Irrigation Crossing	Timber	2400 mm x 1200 mm concrete box
43.5±	Bridge – Shane Creek	Timber	Reinforced concrete bridge w/ steel pile foundation

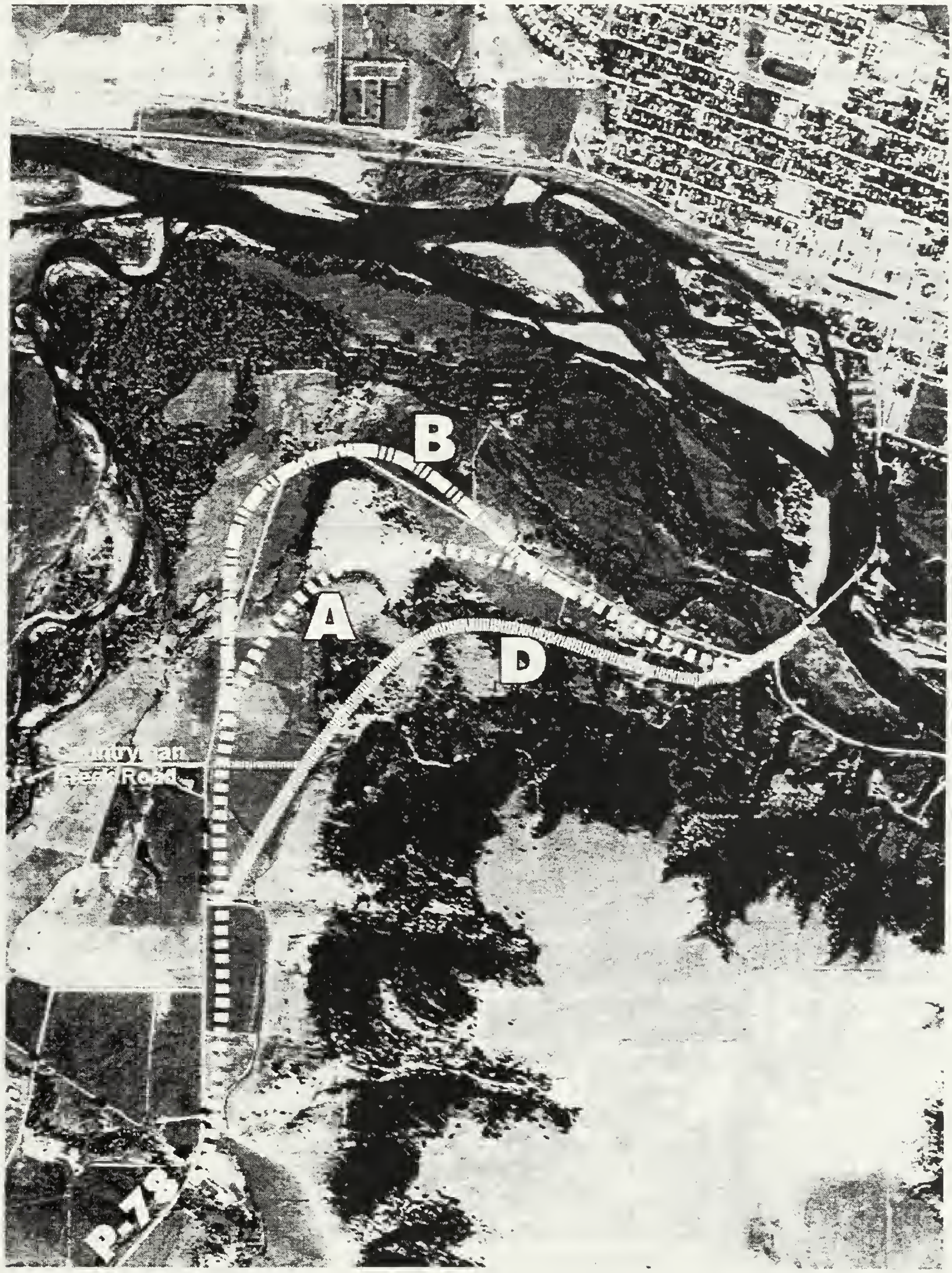
Source: MSE-HKM, November 2000.

RCP = reinforced concrete pipe

CSP = corrugated steel pipe

Shane Creek to the Yellowstone River Bridge — At Nellie's Corner the alignment would shift east of the existing P-78 alignment immediately north of Shane Creek, gradually curving east through Shane Ridge at its western tip or "knob." The alignment would then descend the ridge, staying south of the existing P-78 alignment, tying back into P-78 at S-421, near the southern bridge approach (see Figure 2.6). The S-421 junction would be reconstructed to "tee" into the new P-78 alignment. Minor adjustments would be required for the Countryman Creek Road intersection to provide a direct connection to P-78.

Alternative B1 (Preferred Alternative). From S-419 on the south through Absarokee to Shane Creek this alternative would be the same as Alternative A1. Immediately north of Shane Creek the alignment would shift east of the existing alignment, generally paralleling P-78 up to Countryman Creek Road. Just north



Source: MSE-HKM, 1999.

Figure 2.6: Nellie's Corner Alignment Alternatives

Note: See Figure 2.10: Nellie's Corner Alternatives Considered but Rejected (page 30) for Alignment Alternatives C and E.

of Countryman Creek Road, the alignment would swing west to the outside of the existing sharp corner to provide a gentler curve at Nellie's Corner. This alignment is referred to as the "Flats" alignment. Minor adjustments would be required for the Countryman Creek Road intersection. The junction with S-421 would be reconstructed to "tee" into the new P-78 alignment. Bridge, irrigation crossing, and stockpass replacements proposed for this alternative would be the same as those identified in Table 2.1. The estimated construction cost (excluding new right-of-way) would be $14,407,300 (in 1999 dollars). As a result of the environmental analysis and cost, Alternative B1 is MDT's preferred alternative.

Alternative D1. From S-419 on the south through Absarokee to Shane Creek this alternative would be the same as Alternative A1. Immediately north of Shane Creek Alternative D would leave P-78, gradually curving east through Shane Ridge at a low point or "saddle." The alignment would then descend the ridge, staying south of the existing P-78. The alignment would tie back into P-78 at S-421 near the southern bridge approach. The intersection of S-421 would be reconstructed to "tee" into the new P-78 alignment. Countryman Creek Road would be extended to provide a continued direct connection to P-78. Bridge, irrigation crossing, and stockpass replacements proposed for this alternative would be the same as those identified in Table 2.1. The estimated construction cost (excluding new right-of-way) would be $15,387,600 (in 1999 dollars).

Build Alternatives — 10.8 m (36 ft) Cross Section Alternatives

The 10.8 m cross section would consist of two 3.6 m (12 ft) travel lanes and 1.8 m (6 ft) shoulders. This cross section was assessed as an alternative to MDT's standard 9.6 m (32 ft) cross section because it could provide a better level of service and a safer roadway. However, in terms of roadway capacity, the 10.8 m (36 ft) roadway would be only slightly better than the MDT standard. From a safety or operational standpoint, this section width might provide a slight benefit over a 9.6 m (32 ft) cross section. The wider shoulder width has the potential to provide an additional 2.6 percent reduction in the total number of accidents, as predicted by modeling different cross sections. This alternative would optimize safety and minimize the required right-of-way. It also represents the minimum cross section width to provide a shoulder wide enough for a 0.3 m (1 ft) rumble strip located 15 cm (6 in) off the travel lane and the AASHTO recommended 1.2 m (4 ft) area on the shoulder for bike use. Figure 2.7 illustrates the typical rural section alternatives for the 10.8m (36 ft) road widths.

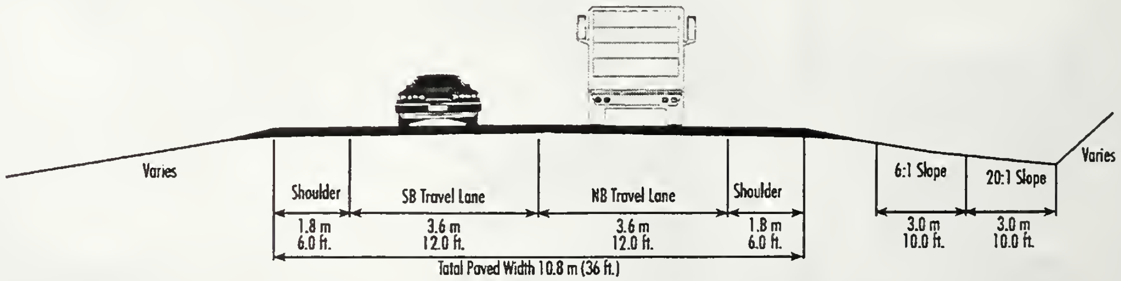


Figure 2.7: 10.8 m (36 ft) Rural Typical Section Alternatives

Alternative A2. This alternative would follow the same alignment as described for Alternative A1 from S-419 to the Yellowstone River bridge. The cross section would be 10.8 m (36 ft) wide, except for a climbing lane south of Absarokee and the portion of highway through the town of Absarokee. At Nellie's Corner the alignment would shift east of the existing alignment, gradually curving east through Shane

Ridge at its western tip or "knob." The estimated construction cost (excluding new right-of-way) for this alternative would be $17,110,100 (in 1999 dollars).

Climbing Lane South of Absarokee — As described for Alternative A1, a climbing lane would be constructed south of Absarokee. This would add a full 3.6 m (12 ft) lane in the southbound direction (from RP 30.9± to RP 31.9±), for a total pavement width of 14.4 m (48 ft), as illustrated in Figure 2.8. The length of the climbing lane section would be 1.5 km (0.9 mi).

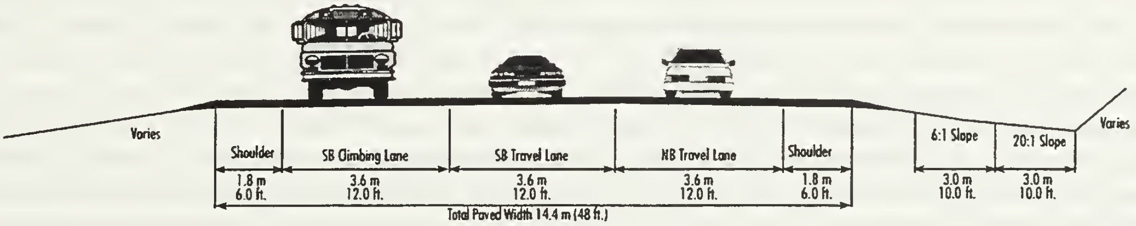


Figure 2.8: 10.8 m Rural Typical Section with 3.6 m (12 ft) Climbing Lane

Absarokee Typical Section(s) — As described for Alternative A1, two additional typical sections would be constructed through Absarokee. A transition section on the south side of town would include a sidewalk along the east side of the roadway, and through the town an urban typical section (including curb and gutter, parking lanes, and sidewalks) would be constructed.

Structure Replacements — As described in Table 2.1 for Alternative A1, the same bridge, irrigation crossing, and stockpass replacements would be included in the roadway reconstruction.

Shane Creek to the Yellowstone River Bridge — At Nellie's Corner the alignment would follow the "Knob" alignment, shifting east of the existing P-78 alignment immediately north of Shane Creek, as described for Alternative A1. The S-421 junction would be reconstructed to "tee" into the new P-78 alignment. Minor adjustments would be required for the Countryman Creek Road intersection to provide a direct connection to P-78.

Alternative B2. From S-419 on the south through Absarokee to Shane Creek this alternative would be the same as Alternative A2. Immediately north of Shane Creek the Alternative B2 alignment would shift east of the existing alignment, generally paralleling P-78 up to Countryman Creek Road. Just north of this road the alignment would swing west to the outside of the existing sharp corner to provide a gentler curve at Nellie's Corner. This alignment is referred to as the "Flats" alignment, and would be the same as Alternative B1. Minor adjustments would be required for the Countryman Creek Road intersection. The junction with S-421 would be reconstructed to "tee" into the new P-78 alignment. Bridge, irrigation crossing, and stockpass replacements proposed would be the same as those identified in Table 2.1 under Alternative A1. The estimated construction cost (excluding new right-of-way) for Alternative B2 would be $15,684,600 (in 1999 dollars).

Alternative D2. From S-419 on the south through Absarokee to Shane Creek this alternative would be the same as Alternative A2. Immediately north of Shane Creek Alternative D2 would leave P-78, gradually curving east through Shane Ridge at a low point or "saddle, as described for Alternative D1. The alignment would descend the ridge, stay south of the existing P-78, and tie back into P-78 at S-421 near the southern bridge approach. The intersection of S-421 would be reconstructed to "tee" into the new P-78 alignment. Countryman Creek Road would be extended to provide a continued direct connection to P-78. Bridge, irrigation crossing and stockpass replacements proposed would be the same as those identified in

Table 2.1. The estimated construction cost (excluding new right-of-way) for Alternative D2 would be $16,715,600 (in 1999 dollars).

2.3 CLIMBING LANE SOUTH OF ABSAROKEE

A climbing lane along the incline south of Absarokee would allow faster moving vehicles an opportunity to pass slower moving vehicles climbing this hill. A climbing lane south of Absarokee was included in all the Build Alternatives because the traffic conditions and the roadway grade warranted consideration of a climbing lane based on the design guidance in AASHTO's *A Policy on Geometric Design of Highways and Streets* (1994). AASHTO guidelines require that four climbing lane criteria be met: (1) heavy vehicle peak traffic volumes must exceed 20 vehicles per hour; (2) the grade (incline) must cause a speed reduction of at least 15 km/h (10 mph); (3) the level of service on the incline must be very low (LOS E or F) or be reduced by two levels (see Table 1.4); and (4) the construction costs of a climbing lane must be considered reasonable. The length of the full width of the climbing lane as proposed is 1.5 km (0.9 mi) from RP 30.9± to RP 31.9±. From north of Lovers Lane to the beginning of the climbing lane taper, a modified ditch section would be incorporated to the design to avoid additional impacts to an adjacent wetland and to minimize impacts to the F & H Mine Supply business.

Based on comments received at a public meeting in Absarokee, this climbing lane was analyzed in detail to identify the beneficial and adverse impacts attributed specifically to the climbing lane in this location.

Both the beneficial and adverse impacts of the climbing lane are documented in Table 2.2. Beneficial impacts of the climbing lane include improving safety by providing safe passing of slower vehicles and providing travel time savings. The travel time savings were calculated based on the following conditions. The climbing lane would be located on an upgrade of approximately a 3.0 percent grade. The length of the grade is approximately 0.8 km (0.5 mi). Per MDT traffic analysis, a truck negotiating the grade during peak hours would delay at least 13 vehicles, given the 2021 estimated peak traffic volume and level of service. It was also determined that the 13 platooned vehicles would not be able to disperse when passing conditions are once again encountered as passing zones would not be long enough for cars to pass trucks traveling at 90 km/h (55 mph).

Table 2.2: Impacts of the Climbing Lane South of Absarokee

Subject Area	9.6 m (32 ft) Alternatives A1, B1, and D1	10.8 m (36 ft) Alternatives A2, B2, and D2
Safety	Climbing lane provides safe passing of slower vehicles.	Climbing lane provides safe passing of slower vehicles.
Travel Time Savings	28.9 seconds per vehicle during peak hour travel (34.2 seconds per vehicle for those traveling to or beyond the Nye Road intersection); savings of 10,058 hours annually.*	28.9 seconds per vehicle during peak hour travel (34.2 seconds per vehicle for those traveling to or beyond the Nye Road intersection); savings of 10,058 hours annually.*
Construction Cost	$35,000	$35,000
Farmland of Statewide Importance	0.1 ha (0.3 ac)	0.3 ha (0.7 ac)
Transportation ROW	0.1 ha (0.3 ac)	0.3 ha (0.7 ac)

Source: MSE-HKM memorandum, November 2, 2000; MDT, Climbing Lane Analysis memorandum, September 27, 2000; BRW, South Climbing Lane Delay Estimate, memorandum, November 2000.

*Assuming 1.2 passengers per vehicle.

The average time savings provided by the climbing lane is estimated to be 28.9 seconds per vehicle during peak hour travel, which correlates to a savings of 10,058 hours per year for roadway users (assuming 1.2 passengers per vehicle). Time savings would be considerably lower during non-peak travel times. In addition, a delay of 5.3 seconds per vehicle is estimated to occur from the end of the climbing lane section to the Nye Road intersection, due to lack of viable passing zones. Therefore, for travelers heading towards or beyond the Nye Road intersection, the total time savings is estimated to be 34.2 seconds during peak hour travel.

The adverse impacts resulting from the climbing lane south of Absarokee include an additional $35,000 in construction costs and additional right-of-way requirements of 0.1 ha (0.3 ac) for the 9.6 m (32 ft) Cross Section Alternatives and 0.3 ha (0.7 ac) for the 10.8 m (36 ft) Cross Section Alternatives. This right-of-way is all farmland of statewide importance (that is, farmland that is important statewide or locally for the production of food, feed, fiber, forage, or oilseed, as determined by the Secretary of Agriculture.)

The adverse impacts of the climbing lane would be considered negligible when compared to impacts for the entire corridor. The cost of the climbing lane would represent 0.2 percent of the corridor project costs for any alternative. The additional right-of-way would account for approximately 0.1 percent of the additional corridor right-of-way required for the 9.6 m (32 ft) Cross Section Alternatives, and 0.4 percent of the additional corridor right-of-way required for the 10.8 m (36 ft) Cross Section Alternatives. The proportion of the corridor farmland impacts attributed to the climbing lane would be similar to the right-of-way impacts.

The climbing lane was proposed for inclusion in the project alternatives because the safety and travel time benefits outweighed the additional cost and right-of-way impacts.

2.4 BASIS FOR RECOMMENDING THE PREFERRED ALTERNATIVE

All of the Build Alternatives would satisfy the purpose of and need for the project by addressing safety concerns and improving the efficiency of the highway, while also providing a design that would be sensitive to built and natural environments within the corridor.

An impact comparison of Alignment Alternatives A, B, and D shows that Alignment Alternative A would cause the greatest noise impacts, affect more wetlands, require the most new right-of-way, and cost the most; but it would result in one fewer well relocation. Alignment Alternative B would impact the greatest amount of prime and statewide important farmland, but it would require the least new right-of-way, would not affect any springs, would have the least visual impact, would provide the best access to existing residences, and would cost the least. Alignment Alternative D would result in the most relocations, the greatest number of indirect residential accesses, and the most historic ditch crossings; it would be the only alignment that would affect a Crow cultural site in the Shane Ridge area. However, it would have the least impact on farmlands and wetlands, and it would require the least relocation of historic irrigation ditches; its cost would be between costs for Alignment Alternatives A and B.

Alignment Alternative B is preferred because it would be the most cost-effective of the three alignment alternatives and would require the least amount of new right-of-way. Construction costs for Alignment Alternative B would be $1.0 million to $1.4 million less than Alignment Alternative A or D; therefore, Alignment Alternative B would be six to eight percent less expensive. Alignment Alternative B would have the fewest number of relocations (three residences and three outbuildings) and would require 1.1 to 2.8 ha (2.7 to 6.9 ac) less right-of-way than Alignment Alternative A or D. While the 10.8 m (36 ft) cross section would provide additional operational and safety benefits, there would be greater impacts on farmlands, wetlands, right-of-way, historic ditches, and wells/springs; also, construction costs would be higher. For Alternative B2 the operational benefits of the wider cross section would include extending the level of service (LOS B) for three more years. Safety benefits of the wider shoulder in the 10.8 m (36 ft) cross section would include accommodating bicyclists in accordance with AASHTO guidelines and the potential for an additional 2.6 percent reduction in the number of accidents, as predicted by modeling various cross sections. However, these benefits would be offset by the additional adverse impacts to farmlands, wetlands, right-of-way, historic ditches, wells/springs, and higher construction costs. The greatest impact would be the nine percent or $1.3 million increase in construction costs. Therefore, Alternative B1 with the 9.6 m (32 ft) cross section is preferred. It should be noted that the public has expressed the desire to minimize the additional right-of-way required and that the 9.6 m (32 ft) cross section is consistent with this desire because it would require 3.8 ha (9.3 ac) less right-of-way than would the 10.8 m (36 ft) cross section.

Alternative B1 with a 9.6 m (32 ft) cross section would be cost-effective; would address current safety issues and roadway deficiencies; would improve future roadway capacity; and would provide an opportunity to improve travel efficiency, business operations, and access for roadway users.

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Transportation System Management (TSM) Alternative

This alternative would maximize the efficiency of the existing system by developing travel demand management strategies or operational system improvements. The primary purpose of travel demand management would be to reduce the number of vehicles using the road system, especially during peak-use hours, by providing a wide variety of mobility options to those who travel. Mobility options include carpools, vanpools, transit, walking, and bicycling. Examples of operational system improvements include coordinating signal timing, implementing one-way pairs of streets, high-occupancy vehicle lanes, or improving signal timing at specific locations. Such improvements are not relevant to the P-78 corridor.

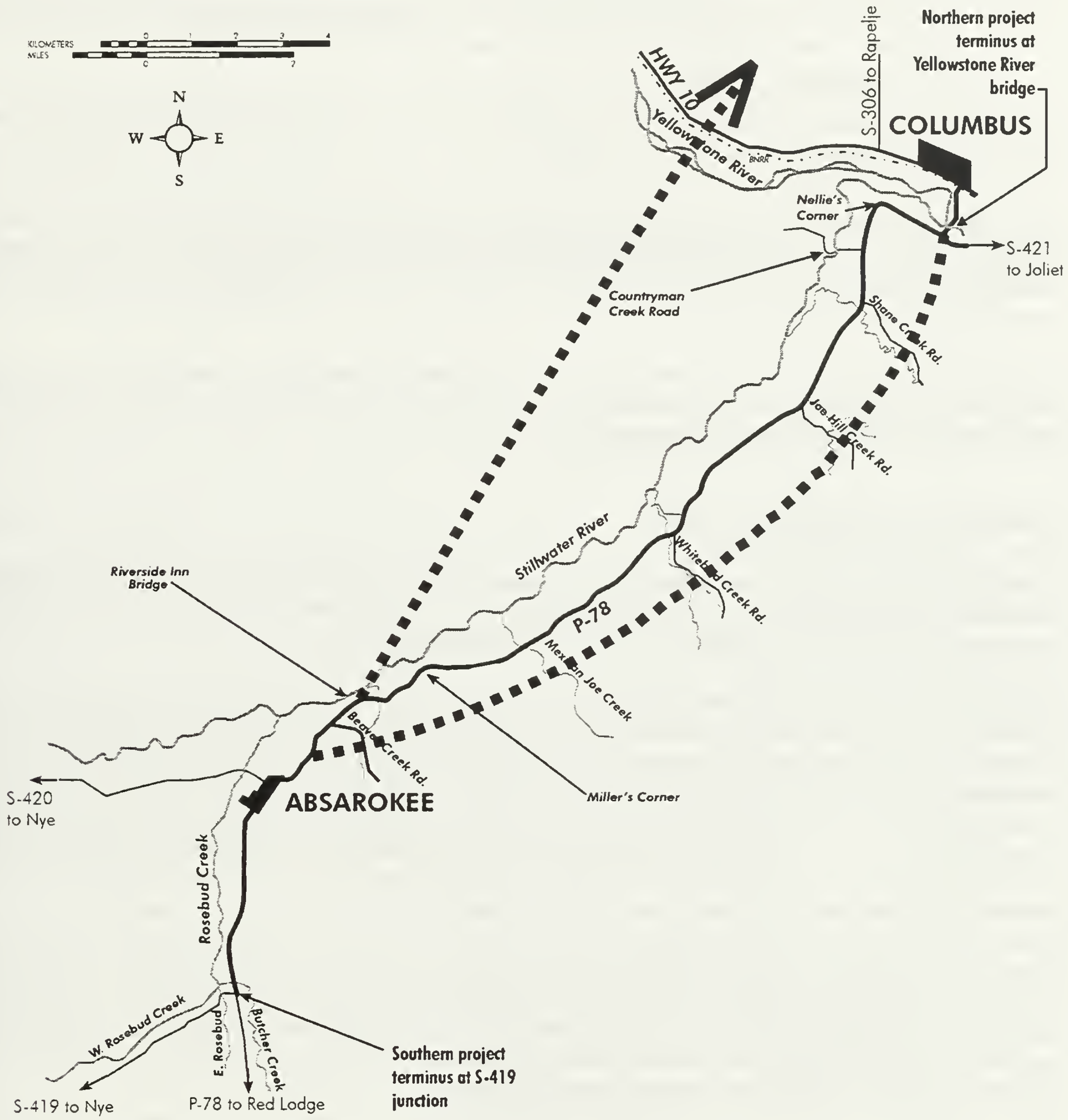
The transportation system management conceptual alternative was evaluated as a potential method to improve the efficiency of the existing facility by reducing the number of vehicles using the road system. While the Stillwater Mining Company currently uses a shuttle service for its employees, there are limited opportunities for additional ridesharing, or demand for high-occupancy vehicle lanes, thus limiting the effectiveness of this alternative to improve efficiency or accommodate future demand. Further, the FHWA Technical Advisory (T 6640.8A) indicates that this alternative is “usually relevant only for major projects proposed in urbanized areas over 200,000 population.” This alternative would also fail to provide any safety improvements to the physical roadway or roadside of P-78.

Alternatives Outside the Existing Corridor

This alternative would construct a new alignment outside the existing roadway corridor and would construct an entirely new facility somewhere else in the Stillwater River valley to connect S-419 and Absarokee to Columbus.

Two potential alignments were identified during the scoping process (see Figure 2.9). One was a new alignment to the east of, and roughly parallel to, the existing road from the Yellowstone River bridge through the hills and along the ridges to Absarokee. Several flaws were identified with this alternative, including:

- A new route would not improve safety on P-78, therefore, not satisfying a major component of the purpose of and need for the project.
- The steep terrain would result in an excess of costly earthwork, and an all new right-of-way would be required.


KILOMETERS
MILES
N
W
E
S
HWY 10
A
S-306 to Rapelje
Northern project terminus at Yellowstone River bridge
COLUMBUS
Yellowstone River
BNRR
Nellie's Corner
S-421 to Joliet
Countryman Creek Road
Shane Creek Rd.
Joe Hill Creek Rd.
Stillwater River
Whitebird Creek Rd.
P-78
Mexican Joe Creek
Riverside Inn Bridge
Beaver Creek Rd.
Miller's Corner
S-420 to Nye
ABSAROKEE
Rosebud Creek
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project terminus at S-419 junction
S-419 to Nye
P-78 to Red Lodge

Source: MDT, 1999.

Figure 2.9: New Alignment Alternatives outside Existing Corridor

- Residents along the approximately 25.7 km (16 mi) existing route would be excluded from the benefits of the new alignment due to the lack of direct access to the facility.
- Construction of a new alignment would double the maintenance requirements for either MDT or Stillwater County, as they would have to continue to maintain the existing route as well as the newly constructed alignment.
- The steep terrain would result in numerous cuts and shaded areas, resulting in icing, which can present a safety problem.

The other alignment involved a new roadway on the northwest side of the Stillwater River. This route would require two major bridges and substantial amounts of new right-of-way, resulting in numerous impacts to farms, ranches, and rural residences. Many of the flaws identified for the alignment above would also apply to this alternative.

The new alignment conceptual alternative was eliminated from further consideration based on this information and the fact that the new alignments would not be cost-effective or improve safety on P-78, the main reason for undertaking the project.

Overlay and Widen Alternative

An alternative to full reconstruction was developed in April 1993. This was a concept to overlay and widen the existing P-78 route, reconstructing only the "unsafe" areas. The objective was to improve the roadway while reducing impacts associated with a complete reconstruction.

Using MDT's minimum design criteria, it was determined that this alternative would salvage only 30 percent of the existing horizontal alignment due to the number and location of substandard curves. Even though a revised horizontal alignment was developed that met the technical design requirements, it was not considered a good design due to the reverse and broken back curves. Because of the proximity to existing residences, irrigation facilities, and wetlands, an alternative to overlay and widen P-78 would not necessarily result in substantially fewer impacts than a full reconstruction alternative. The existing vertical alignment has also been determined to be approximately 90 percent substandard, and no revised vertical alignment was developed as part of this alternative.

It was determined that 70 percent of the project's length would need extensive subgrade work amounting to full reconstruction since it cannot support existing or future traffic loads. The net result was a cost estimate essentially equal to the proposed alternatives (full reconstruction) without the benefits of full reconstruction. At the public scoping meeting on May 6, 1993, this alternative was eliminated from further consideration because it was not cost-effective.

Typical Section Alternatives

8.4 m (28 ft) Typical Section. An 8.4 m (28 ft) roadway, with two 3.6 m (12 ft) travel lanes and 0.6 m (2 ft) shoulders, would be the minimum width that could still provide a shoulder, which the public and agencies agreed are necessary, given the safety concerns. This section was eliminated because it would not provide sufficient capacity to accommodate future traffic. Within three years of the 2021 design year, this alternative would result in an unacceptable LOS D, warranting an upgrade of the roadway.

10.4 m (34 ft) Typical Section. This typical section was considered because it is the design for the Nye Road (S-419). Applying the 10.4 m (34 ft) typical section to P-78 would provide a consistent roadway width from Columbus to the S-419 junction and on into Fishtail. However, a 10.4 m (34 ft) roadway would not be consistent with other rural primary highways in the state. FHWA and MDT agreed that MDT's standard of 9.8 m (32 ft) was similar; therefore, the 10.4 m (34 ft) typical section did not need to be considered in addition to the MDT standard.

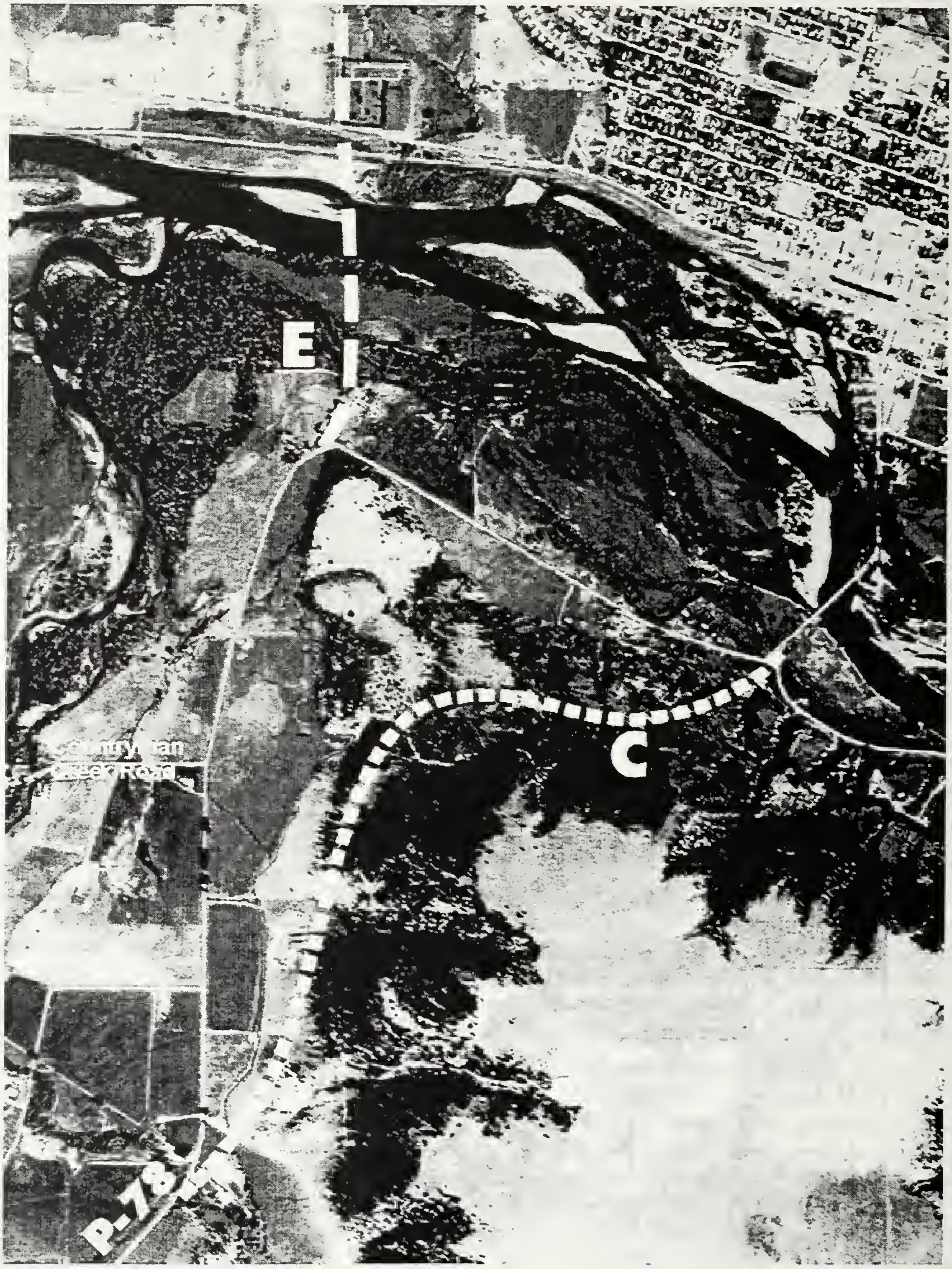
12.0 m (40 ft) Typical Section. A 12.0 m (40 ft) roadway, with two 3.6 m (12 ft) travel lanes and 2.4 m (8 ft) shoulders, would meet AASHTO guidelines for this type of roadway. According to AASHTO's *A Policy on Geometric Design of Highways and Streets* (1994), for a rural arterial with a projected design speed between 50 and 70 mph and design hourly volume over 200, a minimum paved width of 12.0 m (40 ft) with two 3.6 m (12 ft) travel lanes with 2.4 m (8 ft) shoulders are recommended. This section was eliminated because there would be no measurable capacity benefit (compared to the 10.8 m section) that would offset the additional impacts associated with a wider roadway, which is contrary to the public and agency goal to minimize impacts.

Alignment Alternatives at Nellie's Corner

Alignment Alternatives C and E, as described below, were eliminated from further consideration. Figure 2.10 provides an aerial view of the proposed alignment alternatives at Nellie's Corner.

Alignment Alternative C — Hill. The Alignment Alternative C would leave P-78 immediately north of Shane Creek and begin to ascend Shane Ridge northeast of Shane Creek Road. This alignment would follow a gentle curve along the ridge and descend through a deep cut in the north end of Shane Ridge to tie into a direct approach to the Yellowstone River bridge. The junction with S-421 would be reconstructed to "tee" into the new P-78 bridge approach. Countryman Creek Road would not have direct access to the new alignment. For the road segment from north of Shane Creek to the Yellowstone River bridge, the estimated cost (including bridge and approach work, but excluding new right-of-way) would be $8.8 million (in 1999 dollars) as a result of the major cut-and-fill requirements going over Shane Ridge. This alternative would not provide any appreciable operational or safety advantage over other alternatives in the area, yet the estimated cost for this alignment at Nellie's Corner would be three times more than Alignment Alternatives A and D, and six times more than Alignment Alternative B. For these reasons, Alignment Alternative C was eliminated from further consideration.

Alignment Alternative E — New Bridge Crossing. Alignment Alternative E would propose a new crossing of the Yellowstone River, and it was raised in public comment by residents and business owners in Columbus. This alternative would eliminate the curve at Nellie's Corner by following the existing alignment and coming straight across the Yellowstone River at the Rapelje Road and tying into S-306 near Mountain View Cemetery in Columbus. Two new bridges would be constructed to cross the Yellowstone River. A full, elevated interchange would be required to provide separation with the railroad and access to S-306. This interchange would require a large loop ramp to avoid conflict with the Mountain View Cemetery in Columbus and involve significant fill in the Stillwater River floodplain. For the road segment north of Shane Creek, the estimated cost would be $4.9 million (in 1999 dollars). This alternative was eliminated from further consideration because for this segment the cost of new bridge structures and a complex interchange would be double that of Alignment Alternatives A and D, and over three times that of Alignment Alternative B. This information was presented at two public meetings, and the decision was supported by Stillwater County, with the understanding that a new bridge crossing of the Yellowstone River would not be precluded from consideration as part of a future potential Columbus bypass project (see letter in Appendix D.)


E
C
Countryman
Creek Road
P-78

Source: MSE-HKM, 1999.

Figure 2.10: Nellie's Corner Alternatives Considered but Rejected

Absarokee Bypass

A bypass of Absarokee was suggested by a comment at a public meeting. Since this alternative would require a new alignment around the town, there would be no opportunity to provide improvements to Woodard Street (P-78) through Absarokee. The existing safety, water system, and stormwater drainage issues on Woodard Avenue would continue; therefore, this alternative was eliminated from further consideration after consultation with the public.

Passing Lanes and/or Turnouts

Providing passing lanes and/or turnouts was suggested at a public meeting. The existing roadway has limited passing areas due to the poor geometrics. It was suggested that providing safe areas to pass slower vehicles would provide more passing opportunities without requiring reconstruction and widening of the entire corridor. The accident analysis showed that most accidents were not related to passing; in fact, 70 percent of the accidents were single-vehicle accidents. Without the geometric improvements throughout the entire corridor, there would be no opportunity to resolve other safety issues. By improving roadway geometrics, the full reconstruction alternative would also provide for more passing locations; therefore, there would be only isolated needs for additional passing lanes or turnouts.

Climbing Lane North of Absarokee

North of Absarokee (from RP 33.6± to RP 34.3±) a southbound climbing lane was evaluated. It was determined that this additional lane would have a limited impact on travel time savings and would not offer much downstream benefit to travelers, because the lane would end near the north end of Absarokee where traffic would be slowed as it entered Absarokee on Woodard Avenue. Based on public input and due to the fact that the benefits did not outweigh the impacts of this alternative, the north climbing lane was eliminated.

Acceleration/Deceleration Lanes and Left-Turn Lanes

Acceleration/deceleration lanes or left-turn lanes were suggested at a public meeting at three specific intersections along P-78 — S-419 (Fishtail Road), Countryman Creek Road, and North Stillwater Road. These locations were cited as having poor existing sight distances or congestion due to turning vehicles.

These three locations were analyzed in detail. At the Countryman Creek Road intersection and the North Stillwater Road intersection, the proposed roadway design would improve safety and traffic flow in these locations; therefore, additional lanes would not be needed. At the S-419 intersection, turn lanes are already included in the proposed alternatives because the main traffic movement is between S-419 and P-78, resulting in a high volume of turning traffic at this intersection.

CHAPTER 3. THE AFFECTED ENVIRONMENT

This chapter describes existing social, economic, and environmental conditions in the P-78 study area between S-419 and the town of Columbus. This chapter provides information on the existing conditions of the study area to provide a baseline for assessing impacts associated with the proposed P-78 project. "Chapter 4. Environmental Consequences" documents the analysis of potential social, economic, and environmental impacts against the existing baseline.

Guidance provided by the National Environmental Policy Act (NEPA, 42 U.S.C. 4332 (2)(c)), Montana Environmental Policy Act (MEPA, 2-3-104 and 75-1-201 M.C.A.), MDT, and the FHWA Technical Advisory T6640.8A identify subject areas requiring analysis. The following subjects have been identified and are documented in this chapter:

1. Land use
2. Farmlands
3. Social conditions
4. Transportation right-of-way
5. Economic conditions
6. Pedestrian and bicycle facilities
7. Air quality
8. Noise
9. Water quality
10. Wetlands and other waters of the U.S.
11. Waterbodies and wildlife habitat
12. Floodplains
13. Threatened and endangered species
14. Archaeological and historic resources
15. Hazardous wastes
16. Visual resources

3.1 LAND USE AND ZONING

The following sections provide an overview of the existing land use and zoning in the study area. Applicable local and regional comprehensive land use plans are also summarized.

The P-78 study area is located within Stillwater County. It encompasses the area along P-78 from the southern project terminus at S-419 to the northern terminus at the south end of the Yellowstone River bridge at Columbus. The unincorporated town of Absarokee is within the project corridor approximately 3.9 km (2.4 mi) north of S-419, and Columbus is just north of the Yellowstone River bridge. While it is not included in the study area, Columbus is considered to be within the "area of influence" of the proposed project and will be discussed in this section.

Currently, no land use planning or zoning exists for Absarokee. The majority of the study area is comprised of agricultural land and scattered rural residential development. Both Stillwater County and Columbus, however, have developed comprehensive land use plans.

Stillwater County Land Use

As depicted in Table 3.1, there is a diversity of landownership in Stillwater County. Privately owned lands account for approximately 78 percent of the land, while the remaining 22 percent is held by public entities. Federal lands comprise 17 percent of the land area, while state and city/town owned lands account for four percent and one percent respectively. Seventy percent of the land area within the county has been classified agricultural, and another six percent has been classified as private timberland. The remaining three percent of the land area includes tract land, commercial tracts, town sites, exempt properties and other unclassified lands.

Stillwater County Agricultural Use. Over 8,500 ha (21,000± ac) of agricultural lands have been classified as irrigated. These irrigated lands are primarily located in the Fishtail Creek, Rosebud Creek, Stillwater, and Yellowstone River valleys. Another 61,285 ha (151,438± ac) have been classified as non-irrigated agricultural land, mostly located in northern Stillwater County. Wild hay accounts for another 12,381 ha (30,594± ac). Grazing land is located throughout the county and is the largest land use classification, with 241,908 ha (597,761± ac). The total agricultural land classification includes 324,187 ha (801,076± ac), which is 70 percent of the land area within Stillwater County.

Stillwater County Industrial Use. The railroad, utilities, and the Stillwater Mining Company (SMC) site are the primary industrial properties in the county. Railroad property parallels the Yellowstone River through the center of the county. Utilities are dispersed throughout the county from the Mystic Lake Power Plant in the south to the 500kv power lines in the north. The SMC site is in the southwestern part of the county. Industrial properties represent less than one percent of the total land area in the county.

Table 3.1: Stillwater County Land Use

Land Classification	Subclassification Total		Land Classification Total		Percent of Total
Agricultural:					
Irrigated	8,613 ha	(21,283 ac)			
Non-Irrigated	61,285 ha	(151,438 ac)			
Wild Hay	12,381 ha	(30,594 ac)			
Grazing	241,908 ha	(597,761 ac)			
Total Agricultural			324,187 ha	(801,076 ac)	70%
One-Acre Farmsteads			335 ha	(828 ac)	<1%
Private Timberland			26,990 ha	(66,693 ac)	6%
Commercial Tracts			46 ha	(113 ac)	<1%
Industrial Property			1,530 ha	(3,780 ac)	<1%
Tract Land:					
Less than 20 acres	2,221 ha	(5,487 ac)			
20 to 160 acres	3,628 ha	(8,964 ac)			
Low income	10 ha	(24 ac)			
Total Tract Land			5,858 ha	(14,475 ac)	1%
City/Town			21 ha	(51 ac)	< 1%
Exempt:					
Agricultural	112 ha	(277 ac)			
Residential	64 ha	(157 ac)			
Commercial	4 ha	(10 ac)			
Total Exempt			180 ha	(444 ac)	<1%
Other Unclassified			8,571 ha	(21,179 ac)	2%
Federal			79,123 ha	(195,514 ac)	17%
State			18,617 ha	(46,003 ac)	4%
County Total			**465,457 ha**	**(1,150,156 ac)**	**100%**

Source: Stillwater County Master Plan, 1997.

Stillwater County Residential Use. Residential units are comprised of single-family residences, multi-family residences, mobile homes, and a small percentage of other types of housing. The number of units in the county increased by over 38 percent from 1980 to 1990. Over 23 percent of these units however, were vacant at the time when the 1990 census was taken. At that time the majority of these vacant units were being used for either seasonal or recreational purposes.

Single-family residences make up the majority of housing types in Stillwater County. Over 73 percent of the housing units are single-family, while 21 percent are mobile homes, and five percent are multi-family residences. The number of mobile homes increased by 70 percent from 1980 to 1990.

Stillwater County Commercial Use. In Stillwater County only 46 ha (113± ac) is considered as commercial use. These commercial tracts are located in or near the towns of Absarokee, Dean, Fishtail, Molt, Nye, Rapelje, Reed Point, and Park City. A variety of commercial businesses are represented, including cafes, restaurants, groceries, motels, gas stations, hardware stores, ranch and farm supplies, gift and flower shops, antique stores, barber shops, beauty salons, bars, auto repair shops, and insurance and real estate offices.

The *Stillwater County Overall Economic Development Plan* (1989) and the *Stillwater County Master Plan* (1997) both state support for improvements to P-78.

Town of Columbus Land Use

Columbus, which is north of the proposed project area, is considered within the area of influence of the project. The *Columbus Area Master Plan* (1997) identifies a diversity of agricultural, residential, commercial, industrial, and public land uses. Agricultural uses are comprised of irrigated cropland, hayland, and rangeland. Single-family sites are identified within the town. Most commercial uses are located along Pike Avenue, which formerly served as the main highway through town. A very small percentage of land is used for industrial purposes.

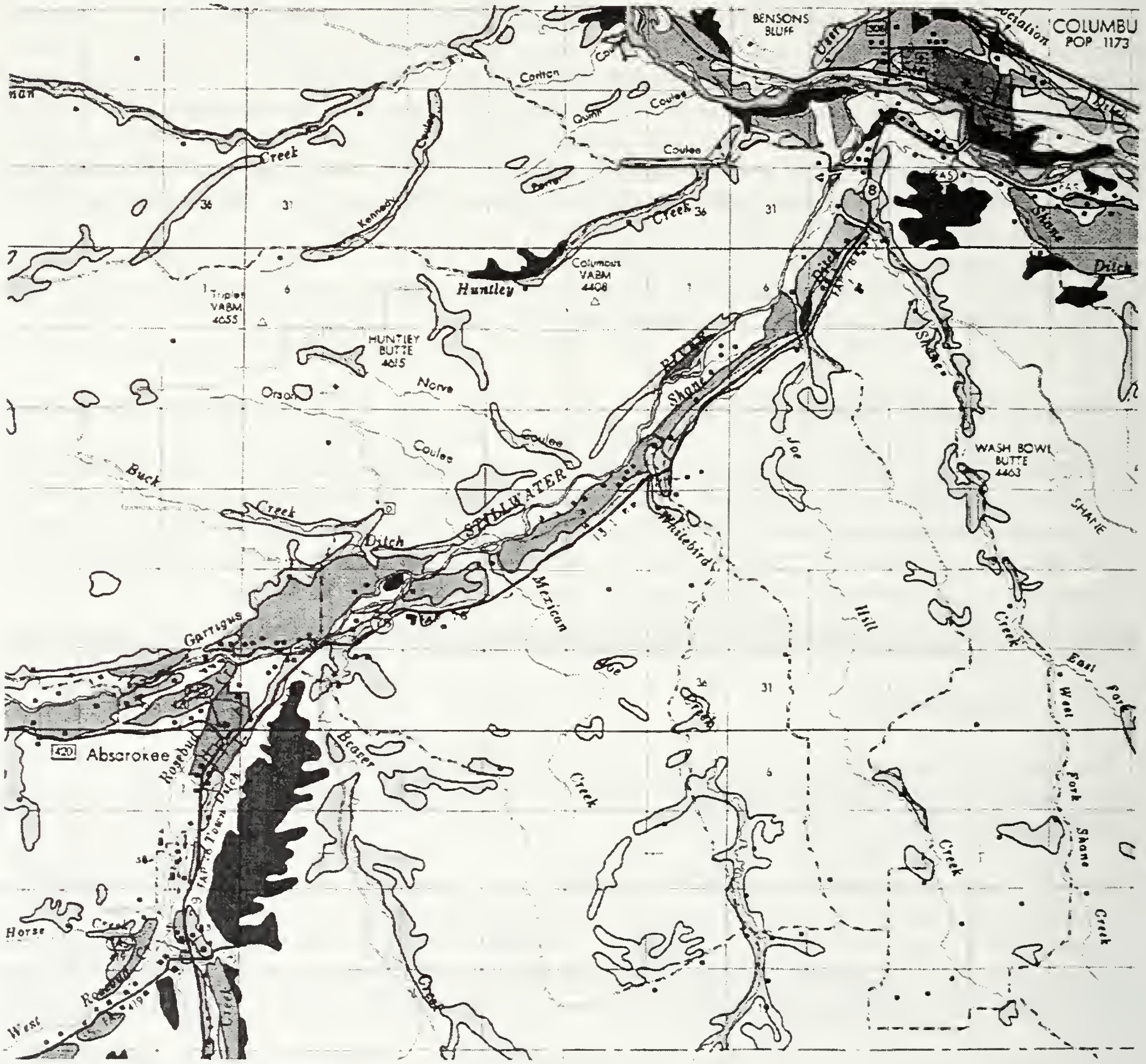
3.2 FARMLANDS

The majority of land adjacent to the proposed project is used for agricultural purposes. The 1981 Farmland Protection Policy Act requires that the effects of proposed highway projects be examined before any farmland is acquired.

Stillwater County contains over 324,000 ha (800,000 ac) of land in agricultural use, with over 8,500 ha (21,000 ac) of irrigated land, primarily in the Fishtail Creek, Rosebud Creek, Stillwater and Yellowstone River valleys. Another 61,285 ha (151,438 ac), primarily located in northern Stillwater County, are classified as non-irrigated agricultural land. Wild hay accounts for another 12,381 ha (30,594 ac). Grazing land, which occurs throughout the county, is the largest land use classification at 241,908 ha (597,761 ac).

According to a review of the important farmland mapping provided by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), a total of 22,873 ha (56,520 ac) of agricultural land within Stillwater County is classified as prime farmland, or additional farmland that would be prime if irrigated. Another 20,918 ha (51,690 ac) are classified as additional farmland of statewide importance. No farmland designated as prime if irrigated is reported in the project area. As illustrated in Figure 3.1, the existing P-78 alignment within Stillwater County traverses prime farmland and additional farmland of statewide importance throughout most of the corridor.

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of resources, as determined by the Secretary of Agriculture. Farmland of statewide importance is farmland that is of statewide or local importance for the production of food, feed, fiber, forage, oilseed, as determined by the Secretary of Agriculture.


BENSONS BLUFF
COLUMBU POP 1173
Station
Coulee
Creek
Kennedy
36
31
Columbus VABM 4408
Huntley
Triples VABM 4655
HUNTLEY BUTTE 4615
Norve
Orsos
Shane
Ditch
Creek
Coulee
Buck
Creek
STILLWATER
Ditch
Garrigus
Mexican
Whitebird
Joe
Hill
WASH BOWL BUTTE 4463
SHANE
Creek
East Fork
West Fork Shane Creek
420 Absarokee
Rosebud
Farm & Town Ditch
Beaver
Creek
Creek
Horse Creek
West Rosebud
419

Source: Natural Resources Conservation Service, USDA 1980.

▒ Prime
▓ Prime if Irrigated
☐ Statewide Important

Figure 3.1: Important Farmlands

3.3 SOCIAL CONDITIONS

The following section describes the general community characteristics, community and public facilities, and parks and recreational opportunities found in Stillwater County. Demographic information pertaining to this area is organized according to the U.S. Census Bureau's county divisions. As such, Stillwater County is divided into the Absarokee, Columbus, Park City, and Stillwater North divisions. Additional information was gathered from the *Stillwater County Master Plan* (1997) and the *Columbus Area Master Plan* (1997).

Community Characteristics

Population Data. The population of Stillwater County was reported to be 6,536 people in the 1990 federal census; the latest 1992 population official estimate report indicated a population of 6,735. The town of Columbus and the surrounding area is estimated to have a population of 1,700 people. From 1970 to 1990 the county grew 23 percent, an average annual growth rate of 1.15 percent. Stillwater County grew over 14 percent from 1980 to 1990 and has one of the highest growth rates in Montana. According to the *Stillwater County Master Plan*, it is also considered to be one of the fastest growing counties in the western United States. The primary reason for this relatively high rate of population growth is the in-migration of people seeking jobs in mining.

The Stillwater County population distribution and change between 1980 and 1990 is described in Table 3.2. Overall, Stillwater County experienced a population increase of 17 percent during this period. Within the county, Absarokee had the greatest population growth with an increase of 507 people (36 percent). Columbus was the second fastest growing area with an addition of 352 people (15 percent).

Table 3.2: Change in the Distribution of Population by Census Tract County Division (1980-1990)

County Division	1980	1990	Percent Change 1980–1990
Stillwater North	581	485	-17%
Park City	1,223	1,398	14%
Columbus	2,387	2,739	15%
Absarokee	1,407	1,914	36%
Stillwater County Total	5,598	6,536	17%

Source: Stillwater County Master Plan, 1997.

Demographic Composition. According to U.S. census data, only minor variations exist in the distribution of people by gender, age, and race/ethnicity among the study area cities. The demographic composition for Absarokee and Columbus county divisions is similar to that for Stillwater County as a whole.

The majority of the study area is made up of young families. Nearly 30 percent of the Absarokee and Columbus county divisions population ranges between 25 and 44 in age, with children up to the age of 17 accounting for nearly 28 percent. Middle-aged and retirement-aged individuals comprise another 36 percent of the population, while the smallest segment consists of persons between the ages of 18 to 24.

The population of the Absarokee and Columbus county divisions is predominantly white. This group comprises 98 percent of the total population. The census reports those of Hispanic origin as part of the white population. Hispanics make up about one percent of the white population, and just under one percent of the total population of the county divisions. The remaining one percent is split between, African American, Native American, Eskimo, Aleut, Asian/Pacific, and other races.

Household Income. The median household income for the Absarokee and Columbus county divisions is comparable to the median household income for the county as a whole. The Absarokee division has the highest median household income at $27,043, 15 percent higher than the county median of $23,582.

According to 1990 census, 12.5 percent of the population in Stillwater County is in poverty. Absarokee has the lowest percentage of people in poverty at 4.1 percent, followed by Columbus at 12.1 percent.

Safety. The average accident rate (mid-1995 to mid-1998) for P-78 was 5.43 accidents per million vehicle miles (MVM), almost four times higher than the rural statewide average (1995 – 1997) of 1.38 per MVM for similar type facilities. A detailed accident analysis for this segment of P-78 is presented in Section 1.3 – Need for the Proposed Project.

Community and Public Facilities

Primary community facilities include libraries, churches, Stillwater County Schools, and emergency services. Table 3.3 lists all schools and libraries, as well as other public facilities and services, including city offices and emergency service providers such as hospitals, police, and fire stations.

Table 3.3: Primary Public Facilities

Area	Community Facilities	Public Services
Absarokee	Absarokee Elementary School Absarokee High School	Absarokee Fire Department
Columbus (outside study area)	Columbus High School Columbus Elementary School Stillwater Sweet Grass Educational Cooperative Stillwater Community Hospital Stillwater County Library	Columbus Volunteer Rural Fire Hall Columbus Fire Department Columbus Sheriff's Office

Source: Stillwater County Telephone Directory, 1999.

Those community facilities located nearest or adjacent to the proposed P-78 project are in Absarokee and consist of:

Absarokee High School
Church of Jesus Christ of Latter Day Saints
Community Congregational Church
Immanuel Lutheran Church
Absarokee Evangelical Church
Absarokee Rural Fire District Station (Absarokee Fire Hall)
Absarokee Elementary School
Stillwater Senior Citizen's Center
St. Michael's Catholic Church

Fire control in Stillwater County is handled through a combination of four legally recognized rural fire districts and three volunteer fire departments. Absarokee Fire District One and Columbus Rural Fire District Three serve the area encompassing the proposed project. The District One station is on leased property within the unincorporated town of Absarokee. The District Three station is on leased property within the town of Columbus. Each district has adopted the countywide "Mutual Aid Agreement." In the event of an emergency, P-78 represents the primary route between the Absarokee and Columbus districts.

Law enforcement in Stillwater County is provided by the Stillwater County Sheriff's Department, located in Columbus. Additional support is provided by the Montana Highway Patrol, located in Billings.

The main health care facility in the county is the Stillwater Community Hospital in Columbus, which serves both local area and regional residents. Ambulance service is provided by a voluntary organization comprised of emergency medical technicians dispatched through the Stillwater County Sheriff's Office.

School buses serving Columbus and Absarokee schools have at least 21 scheduled stops along this route. The Absarokee school district has 10 stops between S-419 and the district boundary. The Columbus school district has 11 scheduled stops between the Yellowstone River bridge and a turnaround near Mexican Joe Creek. Four of the stops on the Columbus route occur in the vicinity of Nellie's Corner.

Parks and Recreational Facilities

Parks and recreational facilities within the study area consist of the MacKay athletic field and the Absarokee High School baseball field, both of which are adjacent to P-78. Outside the study area are the White Bird, Swinging Bridge, and Fireman's Point fishing access sites. The routes to these fishing access sites are from the following roads that intersect with P-78:

- West Whitebird Creek Road provides access to the White Bird fishing access.
- An unnamed road 2.6 km (1.6 mi) south of Joe Hill Creek Road provides access to the Swinging Bridge fishing access.
- Countryman Creek Road provides access to the Fireman's Point fishing access.

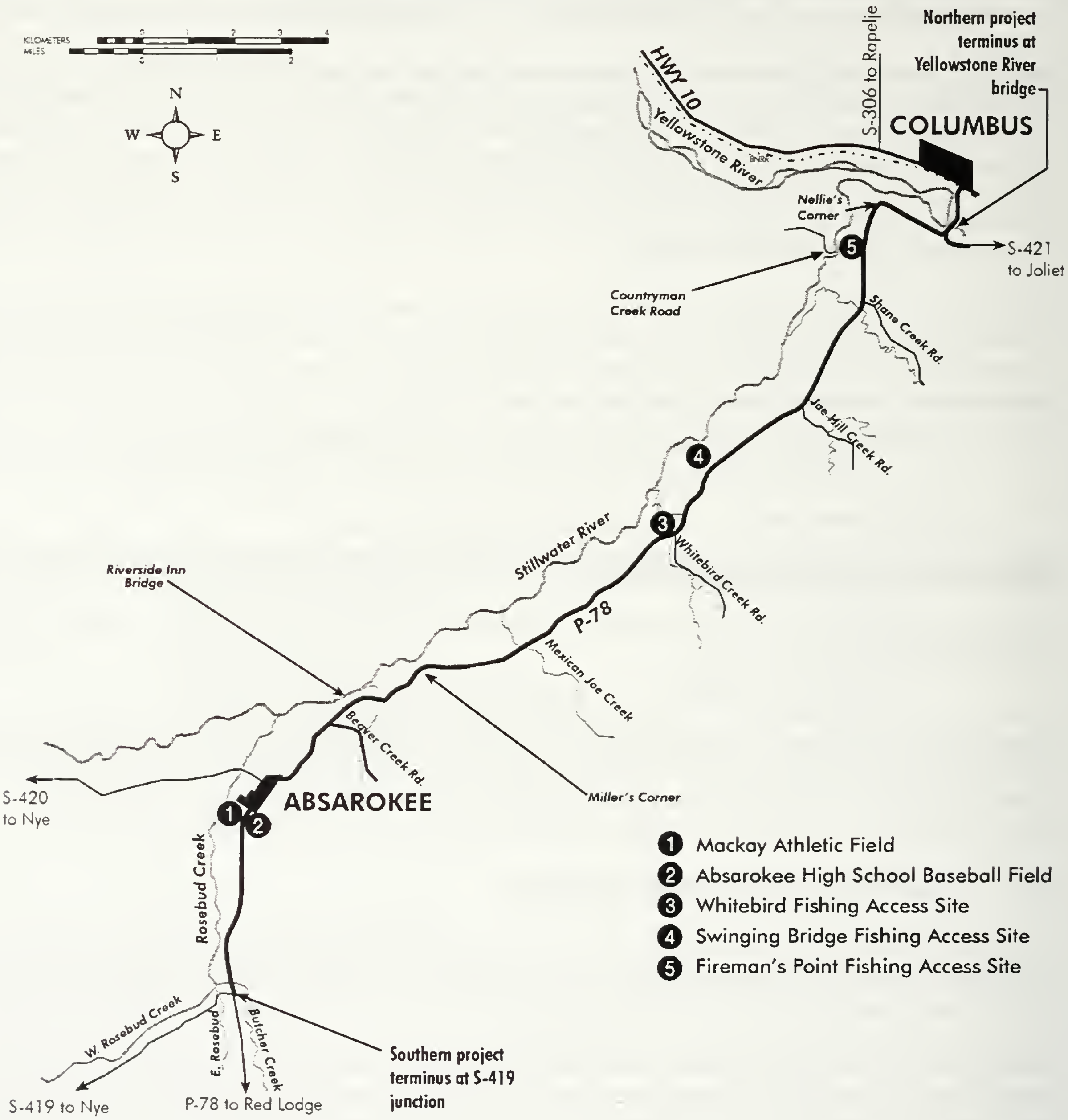
Figure 3.2 illustrates the general location of the athletic fields and the fishing access sites that are accessed via P-78.

According to Montana Fish, Wildlife and Parks (MFWP), no properties within the study area have been developed with National Land and Water Conservation funding. Section 6(f) of the National Land and Water Conservation Fund Act (16 U.S.C. 460) prohibits the conversion of property acquired or developed with these grants to a nonrecreational purpose without the approval of the National Park Service.

3.4 TRANSPORTATION RIGHT-OF-WAY

P-78 is the main north-south transportation route in the central portion of Stillwater County, serving residential, commercial, and industrial land uses throughout the county. Right-of-way for the road varies widely throughout the corridor. The existing alignment is typically within an 18.3± m (60 ft) easement.

Under the previous Environmental Assessment process, two residential properties were acquired under early acquisition by MDT. The residence from one of the properties, located approximately 0.7 km (0.4 mi) north of Absarokee, has been razed, leaving only the foundation in place. The second property is approximately 0.5 km (0.3 mi) south of the Yellowstone River bridge, and a foundation is still in place.


KILOMETERS
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HWY 10
Yellowstone River
BNRR
S-306 to Rapelje
Northern project terminus at Yellowstone River bridge
COLUMBUS
Nellie's Corner
S-421 to Joliet
Countryman Creek Road
Shane Creek Rd.
Joe Hill Creek Rd.
Stillwater River
Whitebird Creek Rd.
P-78
Mexican Joe Creek
Riverside Inn Bridge
Beaver Creek Rd.
Miller's Corner
S-420 to Nye
ABSAROKEE
Rosebud Creek
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project terminus at S-419 junction
S-419 to Nye
P-78 to Red Lodge
❶ Mackay Athletic Field
❷ Absarokee High School Baseball Field
❸ Whitebird Fishing Access Site
❹ Swinging Bridge Fishing Access Site
❺ Fireman's Point Fishing Access Site

Source: BRW, Inc. 1999.

Figure 3.2: Parks and Recreational Facilities

3.5 ECONOMIC CONDITIONS

Employment Data

Stillwater County's unemployment rate has been below federal and state rates since 1992. A total labor force of 3,710 was reported in June 1994. As depicted in Table 3.4, the principal labor needs are in agriculture, mining, retail trade, manufacturing, and government.

Stillwater County doubled its workforce over the past 20 years, and in the past 10 years the county has observed a steady migration of workers into the area. Recent unemployment rates for Stillwater County have been well below the state and national levels.

Per 1990 census data, 2,982 people were employed in Stillwater County. Major employers included Montana Silversmiths, Timberweld Manufacturing, Town Pump and Affiliates, Stillwater Mining Company, Stillwater Convalescent Center, Park City Truck Stop, Stillwater County, and the public schools. Table 3.4 indicates employment totals and the corresponding percentage represented for each industry sector within Stillwater County.

According to the *Beartooth Overall Economic Development Program* (Beartooth Resource Conservation and Development Area, Inc. 1995), which serves as a guide for rural and economic development for the counties of Big Horn, Carbon, Stillwater, Sweet Grass, and Yellowstone, the major industries within the region are agriculture, mining and tourism. Each industry relies heavily on P-78 and will continue to depend on this route.

Agriculture. The total value of agricultural products sold in the area has increased yearly, while the number of farms has steadily declined. There has been an emphasis on higher value crops, such as sugar beets and malting barley, which have been responsible for the upward trend of sales. The total number of

Table 3.4: Industry in Stillwater County

Industry	Employed	Percentage
Agriculture, Forestry, and Fisheries	592	19.9%
Retail Trade	468	15.7%
Mining	276	9.3%
Health Services	247	8.3%
Manufacturing, Durable Goods	202	6.8%
Professional and Related Services	202	6.8%
Construction	191	6.4%
Finance, Insurance, Real Estate	125	4.2%
Manufacturing, Non Durable Goods	115	3.9%
Transportation	107	3.6%
Educational Services	100	3.4%
Public Administration	99	3.3%
Business & Repair Services	95	3.2%
Personal Services	63	2.1%
Communications	42	1.4%
Wholesale Trade	30	1.0%
Entertainment & Recreation Services	28	0.9%
Total	**2,982**	**100.0%**

Source: 1990 U.S. Census.

farm workers continues to decline. Agriculture employed 19.9 percent of all persons employed in Stillwater County in 1990 and was the sector employing the largest percentage of county residents.

However, this sector is employing fewer persons as time passes. Another weakness associated with this industry is its dependence on the weather. As the history indicates, the economy has been drastically impacted by the occurrence of drought, for example, during the mid 1980s.

Mining. The Stillwater Mine in the southern section of the county near Nye has created approximately 850 jobs for residents in the area, according to recent data collected from the Stillwater Mining Company. In addition, lower but stable mineral prices have created a solid economic base for a number of small rural communities in the vicinity of the mine. This increase from 1990 to the present day represents a 170 percent increase in jobs (almost tripling the number of employees). The mine is the largest known platinum and palladium reserve in the United States. Increased mining activity in the area has caused a greater demand for skilled labor in hard rock mining in southern Stillwater County near Nye. The nearest trade school is in Billings, approximately 112.6 km (70 ± mi.) to the northeast, with P-78 providing the most direct route. Montana Silversmiths, located in Columbus, also contributes to the area's economy and employs approximately 250 workers.

Tourism. Out-of-state visitation has been steadily increasing. Montana's reputation as a pristine place is a major attraction for people interested in scenery, historic sites, wildlife, and recreation. Summer and winter employment opportunities are available due to diverse recreational activities. Major employers within the Beartooth five-county area are Red Lodge Mountain Ski Area, Metra Park, historic sites, cultural centers, hotels, resorts, and food and beverage establishments. Tourist activities may also be expanded, particularly along the Yellowstone and Stillwater Rivers and in the Beartooth Mountains. The 1990 census data indicated that only 0.9 percent of employment was in tourism; however, this percentage is probably growing.

Businesses along the P-78 Corridor

The majority of businesses along the P-78 corridor are concentrated on Woodard Avenue, the main street in Absarokee. South of Absarokee are a few scattered businesses, including a convenience store and service station at the intersection of P-78 and S-419. North of Absarokee are primarily farming and ranching operations, including the Miller's Livestock shipping facility. The financial condition of businesses in the county has fluctuated with the economy. Areas entirely dependent on agricultural trade have had difficulties, while towns closer to the mining activity have been more prosperous. Areas of greatest expected growth are Absarokee and the southern portion of Stillwater County. Growth in these areas will only increase travel demands on P-78.

3.6 PEDESTRIAN AND BICYCLE FACILITIES

There are no pedestrian or bicycle facilities within the corridor with the exception of sidewalks along Woodard Avenue in Absarokee. The sidewalks in Absarokee are discontinuous and vary in width. The sidewalks are on both sides of Woodard Avenue from Church Street to approximately 100 m (328± ft) north. From Church Street south to School Street, there is sidewalk only on the east side of Woodard Avenue. From School Street south to the high school there is no sidewalk, but a walkway area is delineated on the roadway by concrete parking bumpers.

Pedestrian safety issues raised at the public meetings included concern for residents in wheelchairs and school children. Several local residents are in wheelchairs, and they must travel in the roadway along

Woodard Avenue because of the lack of sidewalks, difficulty in mounting the sidewalk curb, and the condition of the sidewalk. Schoolchildren use the walkway in the roadway between the elementary school and the high school. Elementary schoolchildren have lunch at the high school facilities, and therefore, need to walk back and forth along Woodard Avenue between the two schools once a day. The only protection students have from traffic on P-78 is the row of concrete parking bumpers (see Figure 3.3). At the high school students using the MacKay athletic field must cross P-78. There is a crosswalk, with an actuated, flashing yellow sign, connecting the high school and the athletic field; but residents and school officials are concerned about the traffic speeds in this location, which is on the southern end of town. The posted speed limit in this area transitions from 50 mph to 30 mph in a 0.9 km (0.5 mi) distance.

Currently, pedestrian and bicycle use within the corridor is generally limited to Absarokee. There was no great interest voiced at the public meetings or by bicycle organizations to expand pedestrian or bicycle use outside of Absarokee.

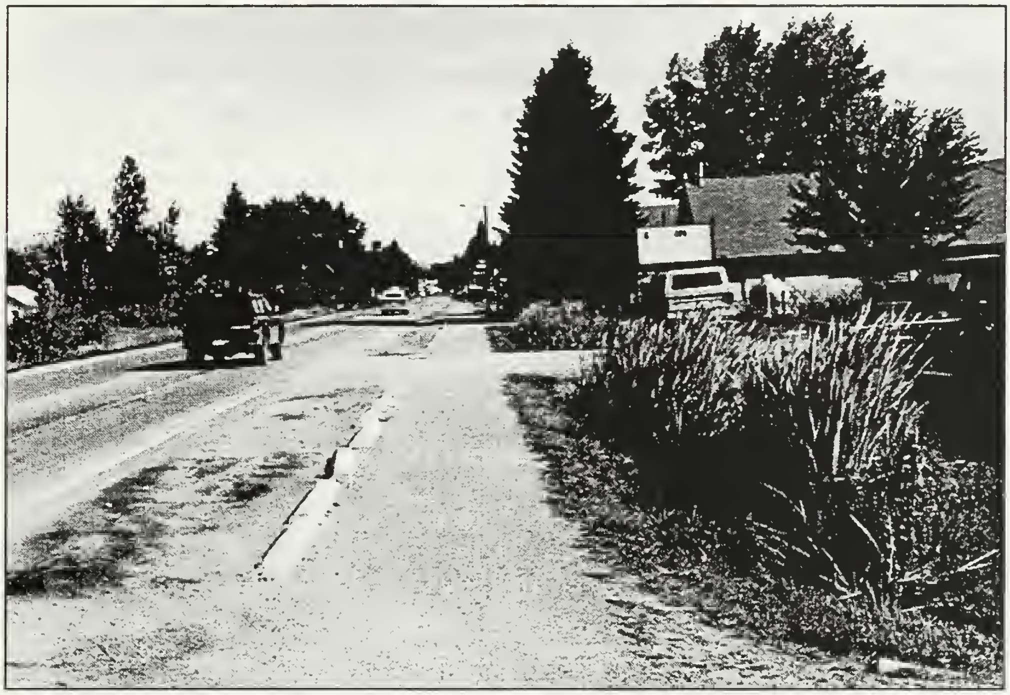


Figure 3.3: View in Absarokee Showing Lack of Formal Sidewalks.

3.7 AIR QUALITY

This section describes the existing air quality of the study area as it relates to the National Ambient Air Quality Standards (NAAQS) for criteria pollutants as set by the U.S. Environmental Protection Agency (EPA). The Montana Department of Environmental Quality (MDEQ) is the agency that sets and enforces air quality standards in Montana.

National Ambient Air Quality Standards

To protect the public from health hazards associated with air pollution, EPA has established National Ambient Air Quality Standards (NAAQS) in association with the Clean Air Act of 1990 for seven criteria pollutants. These seven criteria pollutants are carbon monoxide, ozone, nitrogen dioxide, sulfur dioxide, reactive volatile organic compounds, lead, and particulate matter less than 10 microns in diameter.

In addition, each state is required to develop a state implementation plan that describes existing air quality conditions and measures that will be taken to attain and maintain NAAQS. The 1999-2001 State Transportation Improvement Program (STIP), which includes the P-78 project, is consistent with the state implementation plan.

Air Quality Monitoring

According to information provided by MDEQ, the nearest location of air quality monitoring to the project area is Billings. No air quality monitoring occurs within the project area. Under Title 40 of the *Code of Federal Regulations,* Section 81.327, as amended, the proposed project is located in an unclassified / attainment area of Montana. Therefore, no air quality modeling is required for this project.

3.8 NOISE

The following section discusses the methodology for predicting traffic-related noise and summarizes the existing noise conditions within the study area.

Noise Terminology

Sound is quantified using a logarithmic unit called a decibel (dB). Since the human ear is more sensitive to middle and high frequency sounds than it is to low frequency sounds, sound levels are often weighted to more closely reflect human perceptions. This type of weighting is called "A weighting" and is expressed as dB(A), which corresponds to the threshold of hearing.

Although a human ear can detect a sound level change as small as 1 dB, 3 dB is considered the smallest noticeable change for a time-varying source. An increase or decrease of 10 dB is perceived by most people to be a doubling or halving of the loudness of sound. Noise is often defined as "unwanted sound." Sounds are described as noise if they interfere with an activity or disturb the person hearing them. Sound levels fluctuate with time, depending on the sound source audible at a specific location. Additionally, the degree of annoyance associated with certain sounds can vary by time of day, depending on other sound sources affecting a receiver and the activities of the receiver; for example, the interruption of sleep can be very annoying. For these reasons, sound levels are usually reported using statistical or mathematical descriptors of the time history of sound. The FHWA and MDT use the constant sound level (Leq) to evaluate noise impacts of transportation projects. The Leq is a constant sound level that has the same sound energy as the actual fluctuating sound being measured over a stated time period. (The time period used in the prediction of traffic-related noise is typically one hour).

Noise Abatement Criteria

Land uses along the study area are residential, agricultural, and commercial. Residential land uses are categorized by the FHWA as category B and have noise abatement criteria (NAC) of 67 dB(A) Leq(h). See Table 3.5 for FHWA noise abatement criteria.

Noise Analysis Methodology

Existing noise levels are discussed in terms of both measured and predicted levels. Measured levels are the actual noise levels examined at different locations throughout the study area. These locations

Table 3.5: Noise Abatement Criteria For Considering Traffic Noise Impacts

Land Use Activity Category	Leq(h) dB(A)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in category A or B.
D	No Limit	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: MDT Memorandum, Subject: Noise Analysis, July 11, 2000 (original dated March 22, 1999).

represent a sample of noise sensitive sites. Figure 3.4 illustrates the approximate locations of ambient noise measurements for this proposed project.

The noise model used for this noise analysis is STAMINA 2.0. The noise model was calibrated to represent the site conditions. To calibrate, field noise measurements were taken at seven sites. While the noise meter was recording, traffic counts were tallied according to vehicle class. These data were used as input to the STAMINA 2.0 model to predict existing noise levels. Table 3.6 compares the results for ambient noise monitoring with the predicted noise levels. The 1994 measurements correlate more closely with the predicted levels; however, the 1999 measured level at site 7 is 7 dB higher than the predicted level. Extraneous conditions at the time of measurement, such as the presence of snow and ice on the road and/or a passing prop plane, may account for higher measured noise levels than predicted. These predicted noise levels were compared to the measured noise levels, and it was determined that the noise model predictions were within an acceptable range of the measured noise levels. Consequently, a predicted noise level of 66 dB(A) was used to indicate a potential impacted receiver for category B land uses.

Table 3.6: Ambient Noise Levels Measured and Predicted

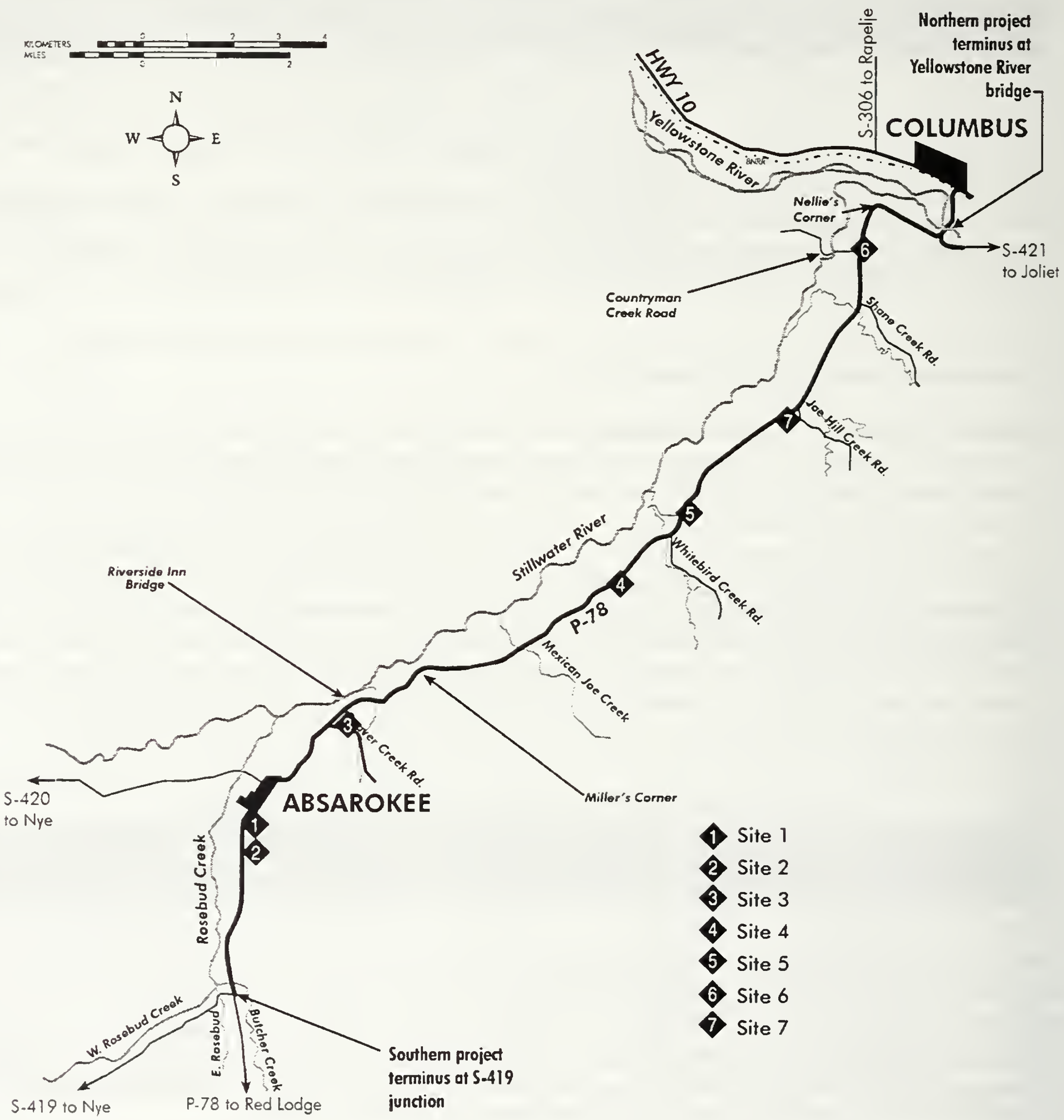
Site	Date – Time	Distance from Centerline Meters (feet)	Measured Noise Level Leq(h) dB(A)	Predicted Noise Level Leq(h) dB(A)	Remarks
1	5/4/94 – 08:00	24 m (79 ±ft)	60	57	Near school, 40 km/h, some pedestrian noise
2	5/4/94 – 09:00	38 m (125 ±ft)	53	55	Residence
3	Eliminated due to inaccurate field measurements				
4	5/4/94 – 10:15	22 m (72 ±ft)	58	59	Residence
5	5/4/94 – 10:55	44 m (144 ±ft)	55	57	Residence
6	5/4/94 – 15:53	93 m (305 ±ft)	44	48	Residence
7	1/25/99 – 13:35	20 m (66 ±ft)	60	53	Road partly wet, prop plane

Source: MDT Noise Analysis Memorandum, July 11, 2000 (original dated March 22, 1999).

Using STAMINA 2.0, 69 receivers were modeled to predict existing and future noise levels for all alternatives, including the No-Build Alternative.

Existing Noise Levels

Of the 69 sites modeled to predict existing noise levels, only one site was identified as exceeding the noise abatement criteria. This site, which is an undeveloped lot, is located at Nellie's Corner. (Refer to chapter 4, section "4.8. Noise," for a listing of predicted existing noise levels for all 69 sites.)


KILOMETERS
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Northern project terminus at Yellowstone River bridge
S-306 to Rapelje
HWY 10
Yellowstone River
BNRR
COLUMBUS
Nellie's Corner
S-421 to Joliet
Countryman Creek Road
Shane Creek Rd.
Joe Hill Creek Rd.
Stillwater River
Whitebird Creek Rd.
P-78
Mexican Joe Creek
Riverside Inn Bridge
Beaver Creek Rd.
Miller's Corner
S-420 to Nye
ABSAROKEE
Rosebud Creek
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project terminus at S-419 junction
S-419 to Nye
P-78 to Red Lodge
1
2
3
4
5
6
7
Site 1
Site 2
Site 3
Site 4
Site 5
Site 6
Site 7

Source: MDT, 1999.

Figure 3.4: Traffic Noise Measurement Locations

3.9 WATER QUALITY

Six creeks would be traversed by the proposed P-78 road reconstruction. From north to south they include Shane, Joe Hill, Whitebird, Mexican Joe, Beaver, and Butcher creeks. Except for Butcher Creek, which is a tributary of West Rosebud Creek and flows to the Stillwater River, the other five creeks are tributaries of the Stillwater River. The Stillwater River flows into the Yellowstone River approximately 1.5 miles upstream (west) of the P-78 Yellowstone River bridge. The average annual mean flow for the Stillwater River for water years 1936 through 1994 near Absarokee is 945 cubic feet per second (cfs) (USGS 1994).

MDEQ is required by Section 303(d) of the Clean Water Act to identify and prioritize those waters for which total maximum daily loads (TMDLs) are needed. These loads are an assessment of the amount of pollutant a waterbody can receive and not violate water quality standards. The total maximum load determines how much "pollutant load" a lake or stream can assimilate. The calculations take into account pollution from all sources, including discharges from sewage treatment facilities and industry; runoff from farms, forests and urban areas; and natural sources. TMDLs provide a way to integrate the management of both point and nonpoint sources of pollution through the establishment of wasteload allocations for point source discharges and load allocations for nonpoint sources of pollution.

Under the TMDL assessment, threatened waterbodies are those that fully support their designated uses, but one or more beneficial uses may be impaired because either

- there is a new or proposed pollution source in the watershed that is not subject to the requirement of a discharge permit, the Montana water quality nondegradation law, or reasonable soil, land, and water conservation practices, or
- there is a documented declining trend in water quality.

Impaired waterbodies do not (or are not expected to) fully meet water quality standards or would be considered threatened, even though EPA and state required technology-based controls and best management practices are already being used.

Recent TMDL litigation in the state of Montana has resulted in dispute over which 303(d) list (1996 or Final 2000) applies. As a result, waterbodies found on both the 1996 303(d) List and the Final 2000 303(d) List will be discussed.

The 303(d) List, which is a compilation of impaired and threatened waters in need of restoration, for 1996 includes the waterbodies indicated in Table 3.7.

Butcher Creek is the only waterbody on the Final 2000 303(d) List that was also on the 1996 303(d) List. On the Final 2000 List, Butcher Creek, (29.8 km [18.5 mi]) from P-78 to the mouth of the Rosebud Creek is listed as "fully supporting" for drinking water and agriculture, "partially supporting" for aquatic life, cold water fish, and industry, and "not assessed" (due to lack of credible data) for recreation (swimmable). The probable causes of impairment include flow alteration, fish habitat degradation and suspended soils, and the probable sources of impairment include erosion and sedimentation, and flow regulation/modification. Butcher Creek and the Stillwater River are listed a low priorities for TMDL development within the upper Yellowstone River basin. The Yellowstone River is listed as high priority for TMDL development. TMDL development is scheduled for completion in 2006 for the Stillwater-Columbus portion of the Yellowstone Region.

The Yellowstone River, Stillwater River, Joe Hill Creek, and West Rosebud Creek were evaluated but not included on the Final 2000 303(d) List. Instead, they are considered as "Waters to be Monitored and Reassessed" due to lacking sufficient and credible data for aquatic life support, cold water fishery,

Table 3.7 : Waterbodies Along P-78 Corridor on the 1996 303(d) List

Waterbody	Estimated Length km (mi)	Probable Impaired Uses	Probable Use Support	Probable Cause	Probable Source
Yellowstone River	191.5 km(119 mi)	Aquatic Life Support Cold Water Fishery—Trout Drinking Water Supply Recreation Swimmable	Partially Supporting	Metals Nutrients Other habitat alterations Suspended solids	Agriculture; highway/road/ bridge construction; irrigated crop production; municipal point sources; natural sources streambank modification/ destabilization.
Stillwater River	56.3 km (35 mi)	Cold Water Fishery—Trout	Threatened	Flow alteration Other habitat alterations	Agriculture; highway/road/ bridge construction; irrigated crop production; land development.
Joe Hill Creek	17.7 km (11mi)	Cold Water Fishery—Trout	Threatened	Siltation	Agriculture; irrigated crop production.
Butcher Creek	33.8 km (21 mi)	Aquatic Life Support Cold Water Fishery—Trout	Partially Supporting	Nutrients Other habitat alterations Siltation Suspended solids	Agriculture; highway/road/ bridge construction; irrigated crop production; natural sources; onsite wastewater systems (septic tanks); rangeland.
West Rosebud Creek	45.1km (28 mi)	Aquatic Life Support Cold Water Fishery—Trout	Partially Supporting	Flow alteration Other habitat alterations	Agriculture; hydromodification; highway/road/bridge construction; irrigated crop production.

Source: MDEQ 1996 303(d) List.

drinking water, recreation (swimmable), agriculture (except for the Stillwater and Yellowstone Rivers), and industry (except for the Stillwater and Yellowstone Rivers). Within the P-78 project area, the Yellowstone River (from Bridger Creek to Alkali Creek) and the Stillwater River (from the West Fork to the Yellowstone River) are “fully supporting” for agriculture and industry and are achieving all the agriculture and industry water quality standards.

Per the MDEQ water quality regulations, the Yellowstone River drainage, which includes the Stillwater River and West Rosebud Creek drainages, has a B-1 water use classification (ARM 17.30.611). Waters classified as B-1 are suitable for drinking, culinary and food processing purposes (after conventional treatment); bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supplies. The B-1 water quality standards do not allow violations (outside a set range) of fecal coliform, dissolved oxygen, pH, turbidity, and temperature, and no increases above naturally occurring concentrations of sediment, settleable solids, oils, or floating solids (ARM 17.30.623).

In September 1994 grab samples were collected from the six creeks traversed by P-78 and sampled for conductivity, pH, turbidity, fecal coliform, and total metals (i.e., antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, and thallium). The parameters were compared to the B-1 classification standards (ARM 17.30.623), and the metals were compared to the MDEQ Water Quality Bureau–7 (WQB–7) surface water standards (MDEQ 1999a). In all creeks except Beaver Creek, fecal coliform (ranging from 224 to 2,100/100ml) exceeded the 200/100ml standard. All other parameters and metals were within the regulatory standards (MDT 1994). (See Appendix F.)

The P-78 project corridor, including the towns of Absarokee and Columbus, are not within a Wellhead Protection District. However, both towns have received assistance from Montana Rural Water Services, Inc., and wellhead protection status may change in the future (MDEQ 2000b). The Absarokee public water system is supplied by five groundwater wells ranging in depth from 8.8 to 33.5 m (29–110 ft). The water from the five wells is blended and stored in the water tower for distribution. Three wells are located in town, and two are northwest of town in the Circle T subdivision. The “church well” (number 006) is located at the south end of town on the east side of P-78 and is housed in a pumphouse approximately 12 m (40 ft) from the existing P-78 center line (Absarokee 2000).

Seventeen domestic groundwater wells have been identified in the P-78 corridor (see section "3.4. Transportation Right-of-Way"). Some of these wells were tested in 1994. The well data are presented in Table 3.8. In 1994, MDT received consent from 11 landowners to sample their wells. The 11 wells were sampled for conductivity, pH, turbidity, fecal coliform and total metals and were compared to the MDEQ WQB–7 groundwater standards (MDEQ 1999a). No groundwater standards were exceeded in the domestic water samples (see Appendix F).

Table 3.8: P-78 Domestic Well Data

Well Location (RP)	Water Right No.	Well Rate (gal/min)	Well Depth (m/ft)	Static Water Level (m/ft)	Yield Rate (gal/min)	Year Sampled	Notes
33.7±L	C024970	15	10.7/35	3.7/12	50	1994	Within regulatory limits.
33.7±R*	–	–	–	–	–	–	No data
33.8±R	C078063	28	NR	NR	NR	1994	Within regulatory limits.
34.5±L	T064511	NR	8.5/28	2.4/8	35		Resident did not consent to sample well.
36.4±R*	–	–	–	–	–	–	No data
39.0±R*	–		–	–	–	–	No data
39.5±L	W007490	40	NR	NR	50	1994	Within regulatory limits.
39.5±R	W012149	20	NR	NR	20	1994	Within regulatory limits.
39.6±R	C077745	6	61/200	19.8/65	6	1994	Within regulatory limits.
39.7±R	W195811	25	NR	NR	25	1994	Within regulatory limits.
41.5±L*	–	–	–	–	–	–	No data
43.0±R	C016618	15	51.8/170	16.8/55	30	1994	Within regulatory limits.
43.5±L	C064501	30	14.6/48	NR	10	1994	Within regulatory limits.
45.5±L	C032934	7	16.5/54	9.4/31	7	1994	Within regulatory limits.
45.6±R	C054148	20	7.6/25	4.3/14	20	1994	Within regulatory limits.
45.8±R	C088818	10	9.4/31	6.4/21	10	1994	Within regulatory limits.
45.8±R*	–	–	–	–	–	–	No data

Source: MDT Memorandum June 3, 1994.

*Not tested.

3.10 WETLANDS AND OTHER WATERS OF THE UNITED STATES

The following section presents the wetlands inventory for the study area. Wetlands offer significant habitat for plant and wildlife species.

Wetland Regulations

Wetlands are regulated by Section 404 of the Clean Water Act, Executive Order (E.O.) 11990 ("Protection of Wetlands"), and E.O. 11998 ("Floodplain Management"). E.O. 11998 requires federal agencies to take floodplain management into account when formulating or evaluating any water and land use plans. The U.S. Army Corps of Engineers is the primary regulating agency in Montana. Under both Corps regulations at 33 CFR 328.3 and EPA regulations at 40 CFR 230.0, the term "wetlands" refers to those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The category "Waters of the U.S." includes those waters listed in 33 CFR 328.3(a) (1986). The lateral limits of jurisdiction in those waters may be divided into three categories. The categories include the territorial seas, tidal waters, and nontidal waters. (See 33 CFR 328.4 (a)(b)(c) for a detailed definition of "Waters of the U.S.") For the purpose of this document, the term "Waters of the U.S." means:

- all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce;
- all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa takes, or natural ponds; the use, degradation or destruction of which could affect interstate or foreign commerce; and
- tributaries of waters identified above

Work permitted by the state in natural streams is covered under the Corps' general Section 404 permit. MDEQ reviews applications for Corps of Engineers permits under the Section 401 certification process. The review considers potential water quality impacts by an applicant and may recommend that the Corps deny a Section 404 permit if water quality standards would be threatened or not met. Alterations to natural stream channels are regulated by MFWP through the 124 SPA permit process.

Wetland Inventory

A wetland resource inventory was conducted as part of the "Biological Resource Report" (BRR) completed for this project on July 23, 1999. The "Biological Resource Report" identified 21 jurisdictional wetland sites within the study area. The total area of wetlands in the study area is 6.18 ha (15.26 ac). (See Table 3.9.) For the purposes of identification within the report, the wetlands were numbered south to north according to their metric station location on MDT plans and their orientation on the left or right side of the existing alignment. For purposes of identification within this document, wetlands are numbered from south to north, from 1 to 21 (see Figure 3.5).

Hydrological sources for wetlands in the study area include precipitation, creek or river overbank flooding, sheet (overland) flow, and subsurface flow (springs and seeps). Wetland soils are generally part of the Yamac-Kobar-Attewan and Lolo-Shawna-Nesda soil associations, both of which are strongly influenced by overbank flooding of rivers and tributaries. Wetland vegetation types include emergent species such as cattail, rushes, and sedges; wet meadow species including various grasses and forbs; scrub-shrub species; and various tree species adapted to wet conditions. The 21 wetlands identified in the project corridor were assigned a functional value and a wetland group, as characterized in Table 3.9.

Table 3.10 summarizes the wetland groups. Group 1 includes only wetland 20, a meander loop characterized as a shallow emergent wetland; group 2, historic river channels; group 3, springs and seeps dominated by sedges and grasses; group 4, vegetated riparian areas adjacent to channels but excluding the channel itself; groups 5 and 6, roadside ditches and irrigation ditches that were determined to be non-jurisdictional so no further analysis was conducted; group 7, wet swales in agricultural fields; and group 8, scrub-shrub type wetlands characterized by sedges, grasses, dogwood, and willow.

Table 3.9: Wetland Group Summary-Hydrogeomorphic (HGM) Function Value and Assessment

Group	Description	Wetland Type	Function / Value Rating	Primary Functions / Values
1	*Basin Type:* Non-isolated/Old river oxbow *Primary Hydrological Source:* Stillwater River *Vegetation:* Cattail, sedges, rushes, shrub and tree species *Soils:* Torrifluvents	Type 3 PEMC/ PSS1C	Category II	Wildlife habitat Sediment/nutrient/toxicant removal Food chain support
2	*Basin Type:* Non-isolated basin/old river oxbow *Primary Hydrological Source:* Yellowstone River, Stillwater River *Vegetation:* Cattail, rushes, and sedges *Soils:* Torrifluvents	Type 3 PEMC	Category II	Wildlife habitat Fish habitat Flood attenuation and storage Sediment/nutrient/toxicant removal Food chain support Groundwater discharge/ recharge
3	*Basin Type:* Shallow depression *Primary Hydrological Source:* Groundwater *Vegetation:* Cattail, watercress, grasses, sedges, and rushes *Soils:* Yamac-Kobar-Attewan association	Type 2 PEMB/ PEMC	Category I,II	Food chain support Groundwater discharge/ recharge Uniqueness
4	*Basin Type:* Non-isolated basin *Primary Hydrological Source:* Butcher, Beaver, Shane Creeks; White Ditch *Vegetation:* Bulrush, sedges, grasses, shrub and tree species *Soils:* Yamac-Kobar-Attewan association and Lolo-Shauna-Nesda association	Type 3 PEMC/ PSS1C	Category II	Wildlife habitat Sediment/nutrient/toxicant removal Sediment/shoreline stabilization Food chain support Groundwater discharge/ recharge Uniqueness
7	*Basin Type:* Agricultural swales and isolated basins *Primary Hydrological Source:* Rosebud Creek, irrigation ditches, White Ditch, runoff *Vegetation:* Sedges, grasses, cattail, and rushes *Soils:* Yamac-Kobar-Attewan association and Lolo-Shauna-Nesda association	Type 2 PEMB	Category III	Wildlife habitat Sediment/nutrient/toxicant removal Food chain support Groundwater discharge/ recharge Dynamic surface water storage
8	*Basin Type:* Non-isolated basin *Primary Hydrological Source:* White Ditch *Vegetation:* Sedges, grasses, shrubs, and trees *Soils:* Yamac-Kobar-Attewan Association	Type 6 PSS1B	Category III	Wildlife habitat Sediment/nutrient/toxicant removal Food chain support Groundwater discharge/recharge Dynamic surface water storage

Source: BRW, Inc., July 1999.

PEMC = Palustrine emergent seasonally flooded

PEMB = Palustrine emergent saturated

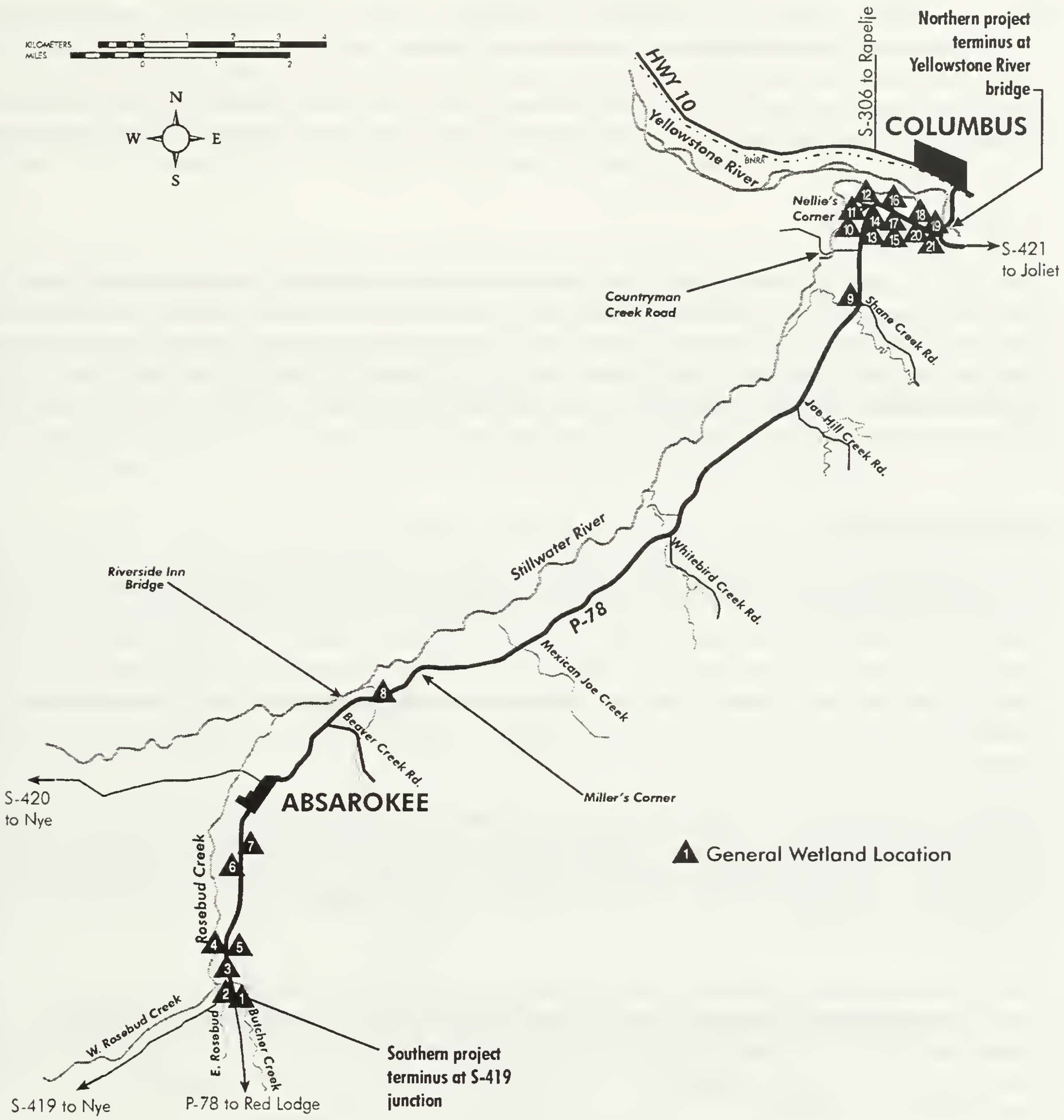
PSS1C = Palustrine scrub-shrub seasonally flooded

PSS1B = Palustrine scrub-shrub saturated

Table 3.10: Individual Wetland Data

Wetland Number	Wetland BRR Number	Function and Value Category	Wetland Group	Approximate Area
1	12 R	III	7	0.030 ha (0.07 ac)
2	13 L	III	7	0.010 ha (0.03 ac)
3	15 LR	II	4	0.008 ha (0.02 ac)
4	22 L	III	7	0.030 ha (0.07 ac)
5	23 LR	III	7	0.500 ha (1.24 ac)
6	40 L	III	7	0.100 ha (0.25 ac)
7	44 R	III	7	0.480 ha (1.19 ac)
8	93 L	II	4	0.090 ha (0.22 ac)
9	230 L	II	4	Shane Creek
10	247 L	I	3	0.210 ha (0.52 ac)
11	248 L	III	7	0.270 ha (0.67 ac)
12	249 L	I	3	Whitebird Ditch
13	249 R	I	3	1.400 ha (3.36 ac)
14	251 Ra	III	7	0.090 ha (0.22 ac)
15	251 Rb	III	7	0.110 ha (0.27 ac)
16	252 L	III	7	0.340 ha (0.84 ac)
17	253 R	III	8	1.060 ha (2.62 ac)
18	254 L	II	4	0.030 ha (0.07 ac)
19	265 L	II	2	0.510 ha (1.26 ac)
20	269 LR	II	1	0.560 ha (1.40 ac)
21	270R	II	2	0.350 ha (0.86 ac)
			Total	**6.180 ha (15.26 ac)**

Source: BRW, Inc., “Biological Resource Report,” July 23,1999.


KILOMETERS
MILES
0
1
2
3
4
N
W
E
S
HWY 10
Yellowstone River
BNRR
S-306 to Rapelje
Northern project terminus at Yellowstone River bridge
COLUMBUS
Nellie's Corner
10
11
12
13
14
15
16
17
18
19
20
21
S-421 to Joliet
Countryman Creek Road
9
Shane Creek Rd.
Joe Hill Creek Rd.
Stillwater River
Whitebird Creek Rd.
Riverside Inn Bridge
P-78
Mexican Joe Creek
8
Beaver Creek Rd.
Miller's Corner
S-420 to Nye
ABSAROKEE
7
6
Rosebud Creek
4
5
3
2
1
General Wetland Location
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project terminus at S-419 junction
S-419 to Nye
P-78 to Red Lodge

Source: MDT. 1999.

Figure 3.5: Wetland Locations

3.11 WATERBODIES AND WILDLIFE RESOURCES

A site visit and evaluation was conducted in November 1996 and August 1998. Reconnaissance level surveys were performed throughout the study area to identify wildlife and signs of wildlife such as nests, tracks, and scat. An evaluation of habitat and general vegetation was conducted as part of the field survey and is included in the "Biological Resources Report" for this proposed project. Threatened and endangered species are discussed in section "3.12 Threatened and Endangered Species" of this chapter.

Water Resources

There are six drainage areas (perennial or intermittent) in the study area that are traversed by the proposed road reconstruction. The perennial drainage areas are Shane, Joe Hill, Beaver, and Butcher Creeks. Mexican Joe Creek and Whitebird Creek are classified as intermittent streams. Butcher Creek is a tributary to West Rosebud Creek. Shane, Joe Hill, Whitebird, Mexican Joe, and Beaver Creeks are tributaries to the Stillwater River. Most of the streams have irrigation facilities associated with them, and a few streams are dry through much of the summer and early fall.

Wildlife Habitat

The dominant habitat type within the study area is agricultural land both farmed and grazed. This habitat generally occurs west of P-78. The second most abundant habitat type to the east is the steep sloped hill, which has combination of grass, brush, and forested plant communities. The agricultural areas are primarily irrigated and non-irrigated fields used for grazing, haying, and small grain production. The steep sloped areas are generally used for grazing, residential development, or left as open space habitat. Wetland and riparian vegetation is found scattered along both the east and west sides of the proposed project.

Although no infestations of noxious weeds are found along the project corridor, three invasive plant species are known to exist within the study area. These include the Canada thistle, spotted knapweed, and leafy spurge. Spotted knapweed and leafy spurge are slightly more prevalent towards the town of Columbus (near the northern project terminus), while Canada thistle is more prevalent near the southern portion of the study area.

The proposed project is located in the range of several big game mammals, including mule and white-tailed deer. Other mammals classified as game or fur-bearing species in the area are the bobcat, badger, beaver, coyote, red fox, raccoon, striped skunk, muskrat, and a variety of small rodents and insectivores. Physical evidence recorded during field surveys indicates the presence of the mule deer, white-tailed deer, striped skunk, and beaver.

Avian species observed during field surveys include the black-capped chickadee, chipping sparrow, song sparrow, house sparrow, dark-eyed junco, red-breasted nuthatch, black-billed magpie, northern flicker, downy woodpecker, hairy woodpecker, mountain bluebird, Townsend's solitaire, European starling, American robin, rock dove, red-winged blackbird, Clark's nutcracker, northern shrike, common raven, golden eagle, bald eagle, red-tailed hawk, common mallard, Canada goose, sandhill crane, and ring-necked pheasant. Nest structures of the northern oriole were also observed within the study area, though the actual species were not observed.

Aquatic Resources

Amphibians known to occur in Stillwater County include the tiger salamander, boreal chorus frog, and the leopard frog. No amphibian species were observed during the late winter/spring field surveys.

Reptiles suspected of inhabiting Stillwater County include the painted turtle, sagebrush lizard, eastern short-horned lizard, rubber boa, racer, gopher snake, milk snake, common garter snake, western garter snake, and prairie rattlesnake. No reptile species were observed during the late winter/spring field surveys.

The 1989 *Montana Rivers Information System Rivers Report* contains information on the fisheries resources in Butcher, Joe Hill, and Beaver Creeks. A 1977 survey of Butcher Creek from the headwaters to the mouth (33.6 km / 21± mi) revealed a sparse population of brook trout, brown trout, white sucker, and mountain sucker. Joe Hill Creek, also surveyed in 1977 from the headwaters to the mouth (17.6 km / 11± mi), was found to support a small number of brown trout, mountain whitefish, longnose dace, sucker species, and a minnow species. Also in 1977, Beaver Creek was sampled from the headwaters to the mouth (18.6 km / 11.6± mi). This sample revealed the presence of minnow, longnose sucker, and white sucker. Intermittent flow in these streams severely limits their fishery resource potential.

East Rosebud Creek sustains a viable population of brown trout, with lesser numbers of rainbow trout, brook trout, longnose sucker, and mountain whitefish. The Stillwater River supports a population of rainbow trout, brown trout, longnose dace, longnose sucker, white sucker, mountain whitefish, shorthead redhorse, common carp, and goldeye.

3.12 THREATENED AND ENDANGERED SPECIES

In accordance with Section 7(c) of the Endangered Species Act of 1973, this project was evaluated to determine the potential effects on plant and animal species listed by the USFWS as threatened, endangered, candidate, or proposed. The "Biological Resources Report" for this proposed project identifies three potential threatened or endangered species within the study area. Procedures outlined by U.S. Fish and Wildlife Service in July 1998 were followed for the biological assessment of all species that may occur in the area. Table 3.11 lists the species identified and their status.

Table 3.11: Federal Threatened and Endangered Species

Common Name	Scientific Name	Status
Black-footed ferret	*Mustela nigripes*	Endangered
Bald eagle	*Haliaeetus leucocephalus*	Threatened
Peregrine falcon	*Falco peregrinus*	Recently de-listed

Source: BRW, Inc., "Biological Resources Report," 1999.

The black-footed ferret was identified as potentially occurring in Stillwater County; however, no specimens or visual observations have been documented. No prairie dog colonies were observed during the field surveys of the project area. Based on the extent of agricultural land and residential development, suitable habitat may be the limiting factor.

Numerous adult and subadult bald eagles were observed in the Stillwater and Rosebud Creek valleys during the winter wetland delineation project in February 1994. These birds are considered winter residents, which consist of Montana's nesting bald eagle population as well as migrant birds from Canada.

A viable bald eagle nest (Countryman Creek nest) is located approximately 3.2 km (2.0±mi) west of Columbus along the Yellowstone River (R2S, R19E, Sec. 14). MFWP representatives stated that the pair actively nested in spring 1993, the first year the nest was recorded. The proposed project is considered to be outside the three zones that comprise the bald eagle nesting territory: (1) the nest site area, (2) the primary use area, and (3) the home range. Aerial bald eagle nest surveys conducted in 1993 by MFWP identified no bald eagle nesting activity in the Stillwater, Rosebud, and East Rosebud Creek drainage areas.

State Species of Special Concern

In addition to the federally listed threatened and endangered species, the Montana Natural Heritage Program completed a database search of species of special concern and watch species for the State of Montana that could potentially occur in the study area. These plant and animal species are considered rare, endemic, threatened, or endangered throughout their range in Montana.

No terrestrial or aquatic species of special concern were identified as potentially occurring in the study area, with the exception of the peregrine falcon, which was recently delisted from the endangered species list.

The peregrine falcon was officially placed on the endangered species list by the U.S. Fish and Wildlife Service in 1969. In August 1999 the agency delisted the peregrine falcon because of a remarkable recovery over most of its biogeographical range. Populations of the peregrine falcon will be monitored for five years following delisting.

The study area is between the peripheral boundaries of two known peregrine falcon aeries in the Pryor Mountains and the Absaroka-Beartooth Range. There are no recent peregrine falcon nesting records near the proposed project. Typically, the falcons observed in this area are migratory birds passing through the area in the spring and fall.

3.13 FLOODPLAINS

This section provides an inventory of the 100-year floodplains within the study area. E.O. 11988 defines a "floodplain" as lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, with a one percent or greater chance of flooding in a given year.

E.O. 11988 and FHWA's floodplain regulation (23 CFR 650 (A)) require an evaluation of this proposed action to determine if any of its alternatives encroach on the base floodplain. The base floodplain is defined as the area covered by water from a 100-year flood. The 100-year flood represents an event, that has approximately a one percent chance of occurring on any day, or a probability of occurring once in a century. This inventory included a review of the Flood Insurance Rate Map(s) for the study area, including panels 630, 513, 514, 512, 516, 508, 507, 394, and 507.

In addition to the base survey information necessary for the overall project, data were collected specifically for the hydraulic analysis performed. Additional drainage data consisting of existing crossing locations, culvert sizes, bridge opening sizes and configurations, and channel slopes were also identified in the "Hydrologic and Hydraulic Study, Final Report," completed for this project in April 1999 (MSE-HKM, Inc.). Data collected for the irrigation systems included ditch locations, profiles, cross-sections, and water surface elevations; culvert crossing locations, sizes, lengths and slopes; and delivery and field locations and types.

The creeks crossed by the existing and proposed highway routes are generally classified as perennial streams, with the exception of Whitebird Creek and Mexican Joe Creek, which are intermittent. The drainages are characteristically forested foothills and rangeland, typical of south central Montana. All watercourses crossed by the highway alignment are tributaries of West Rosebud Creek and the Stillwater River, in the Yellowstone River basin.

The Federal Emergency Management Agency (FEMA) has delineated approximate 100-year floodplain boundaries for the following:

Rosebud Creek
East Rosebud Creek
Butcher Creek
Beaver Creek
Whitebird Creek
Shane Creek
Stillwater River
Yellowstone River

P-78 currently crosses Butcher Creek, Beaver Creek, Whitebird Creek, and Shane Creek, resulting in a transverse encroachment to a segment of each designated floodplain. There are no longitudinal encroachments of floodplains within the corridor. Figure 3.6 illustrates the approximate floodplain boundaries within the study area.

Stillwater County has adopted floodplain development regulations for delineated floodplains within the county and is currently participating in the regular phase of the National Flood Insurance Program.

Ice jams from the Stillwater River near Countryman Creek Road have caused the river to back up through irrigation ditches and canals. This flow has flooded various lower areas along the Stillwater River and has entered the fields immediately west of P-78, causing road icing throughout the Nellie's Corner area.

3.14 ARCHAEOLOGICAL AND HISTORIC RESOURCES

Cultural resources are defined in Section 301 of the National Historic Preservation Act (NHPA) of 1966, as amended, as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places" (16 USC 470W). Established criteria are used to determine if a cultural resource is eligible for listing on the National Register. A property must be important in American history, architecture, archaeology, engineering, or culture; it must also possess integrity of location, design, setting, materials, workmanship, feeling, and association; and it must meet at least one of the following criteria:

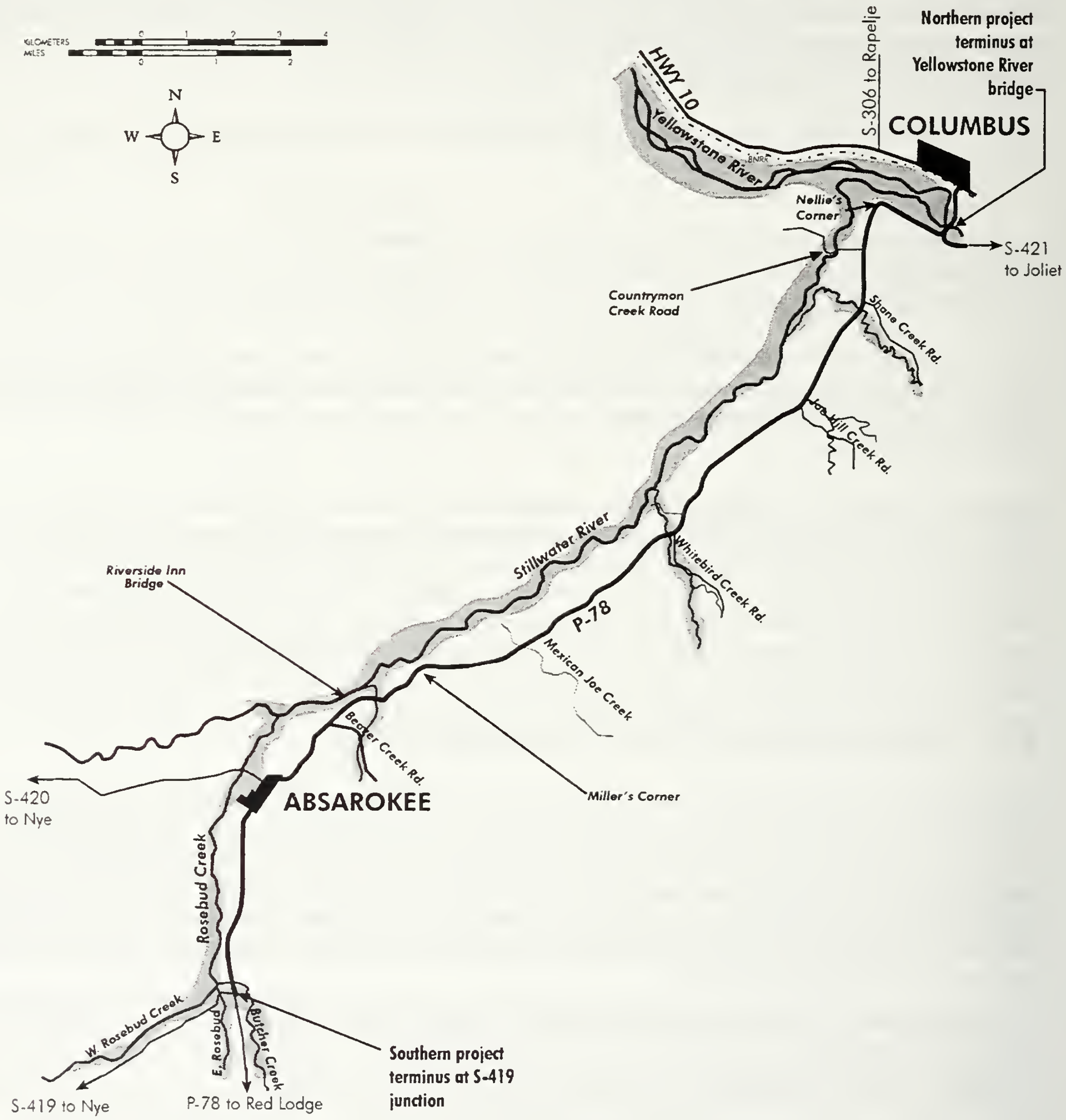
(a) association with events that have made a significant contribution to the broad patterns of the area's history, or

(b) association with the lives of persons significant in the area's past, or

(c) embodiment of distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a significant distinguishable entity whose components may lack individual distinction, or

(d) has yielded, or may be likely to yield, information important in prehistory or history.

The cultural resources inventory for this corridor was conducted in compliance with federal guidelines, including Sections 106 and 110 of the National Historic Preservation Act and regulations at 36 CFR 800, and resources listed on or eligible for listing on the National Register of Historic Places were identified.


KILOMETERS
MILES
0
1
2
3
4
N
W
E
S
HWY 10
Yellowstone River
BNRR
S-306 to Rapelje
Northern project terminus at Yellowstone River bridge
COLUMBUS
Nellie's Corner
S-421 to Joliet
Countrymon Creek Road
Shane Creek Rd.
Joe Hill Creek Rd.
Stillwater River
Whitebird Creek Rd.
P-78
Mexican Joe Creek
Riverside Inn Bridge
Beaver Creek Rd.
Miller's Corner
S-420 to Nye
ABSAROKEE
Rosebud Creek
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project terminus at S-419 junction
S-419 to Nye
P-78 to Red Lodge

Source: Federal Emergency Management Agency.

Figure 3.6: Floodplains within the Study Area

Research Methodology

The research methods used to identify cultural resources potentially impacted by the proposed project alternatives included a review of the Montana State Historic Preservation Office's (SHPO) database for known cultural resources (referred to as Cultural Resource Information Systems Report), and a search for literature on the project area (the Cultural Resource Annotated Bibliography System).

For archeological resources, the area of potential of effect (APE) is limited to any additional right-of-way that may be acquired or used to complete the improvement alternatives. A cultural resource survey was initially conducted by Historical Research Associates in 1988 and then updated by Ethnoscience in June 1999. The 1988 project area was 4.0 km (2.5 mi) longer than the current project's corridor; therefore, the 1988 report contains information on additional sites. Both of these reports are available for public review at MDT. Historical Research Associates surveyed 53.3 m (175 ft) from the proposed centerline of the roadway alignment for prehistoric and historic resources, and surveyed from 53.3 m (175 ft) to 76.3 m (250 ft) for historic standing structures. The first row of buildings adjacent to the highway in the town of Absarokee were also surveyed. The Ethnoscience survey covered areas up to 61 m (200 ft) on both sides of the proposed alignment centerline in locations where the proposed alignment changes from earlier designs. A proposed realignment of P-78 near the Riverside Inn was surveyed, and four alignments were surveyed in the Nellie's Corner and Shane Ridge areas. The area surveyed by Ethnoscience totaled approximately 8.4 km (5.3± mi.) in length and covered 102.4± ha (253±ac). Resources included areas consisting of recent and historic housing, farming-related structures, and a variety of archeological types.

In June 1999 Ethnoscience also conducted a tribal consultation with the Crow Tribe to identify any traditional cultural concerns about the project, particularly the area near Nellie's Corner and Shane Ridge, where multiple alternatives depart from the existing alignment. According to a 1999 update of the cultural resource inventory by Ethnoscience, the project area lies within the traditional Crow territory as defined by the 1851 Fort Laramie Treaty and was within the boundaries of the Crow Reservation until 1891.

Resource Inventory

Appendix C lists properties reviewed and considered during the cultural resource survey. Approximately 54 properties were surveyed in 1988. In June 1999, 53 of these properties in the current study area were reevaluated, and 20 additional properties deemed old enough (as of 1999) to be considered potentially eligible to the National Register of Historic Places were surveyed. Of all properties reviewed, a total of 13 properties and 7 ditches within the Lower Stillwater River Historic Irrigation District are listed, or are eligible for listing, on the National Register. Figure 3.7 and Figure 3.8 show the locations of these sites.

Table 3.12 identifies the properties in the area of potential effect that are currently listed, or eligible for listing, on the National Register of Historic Places by the Montana State Historic Preservation Office. The following ditches in the project area are part of the Lower Stillwater River Historic Irrigation District:

Kem-Mulherin ditch (24ST205)
Roadhouse ditch (24ST206)
Scott ditch (24ST208)
Shane ditch (24ST209)
White ditch (24ST210)

The Agency ditch (242ST204) and Butcher Creek-Rosebud ditch (24ST214), which are also part of the historic district, are both outside the area of potential effect.

A "Memorandum of Agreement" (MOA) concerning the Lower Stillwater River Historic Irrigation District was signed by the FHWA, SHPO, and MDT in 1989, and was accepted by the Advisory Council on Historic Preservation in 1990, which is still in effect. This document stipulates three measures specifically dealing with the Lower Stillwater River Historic Irrigation District: (1) perpetuate the ditches by relocating them immediately outside the new highway right-of-way; (2) keep a record of the existing and new locations of the ditches on project plans (stored by MDT and made available to researchers); and (3) prepare a researchers' guide to historic irrigation systems in Montana. (See Appendix C.)

Table 3.12: Properties Listed on or Eligible for Listing on the National Register of Historic Places

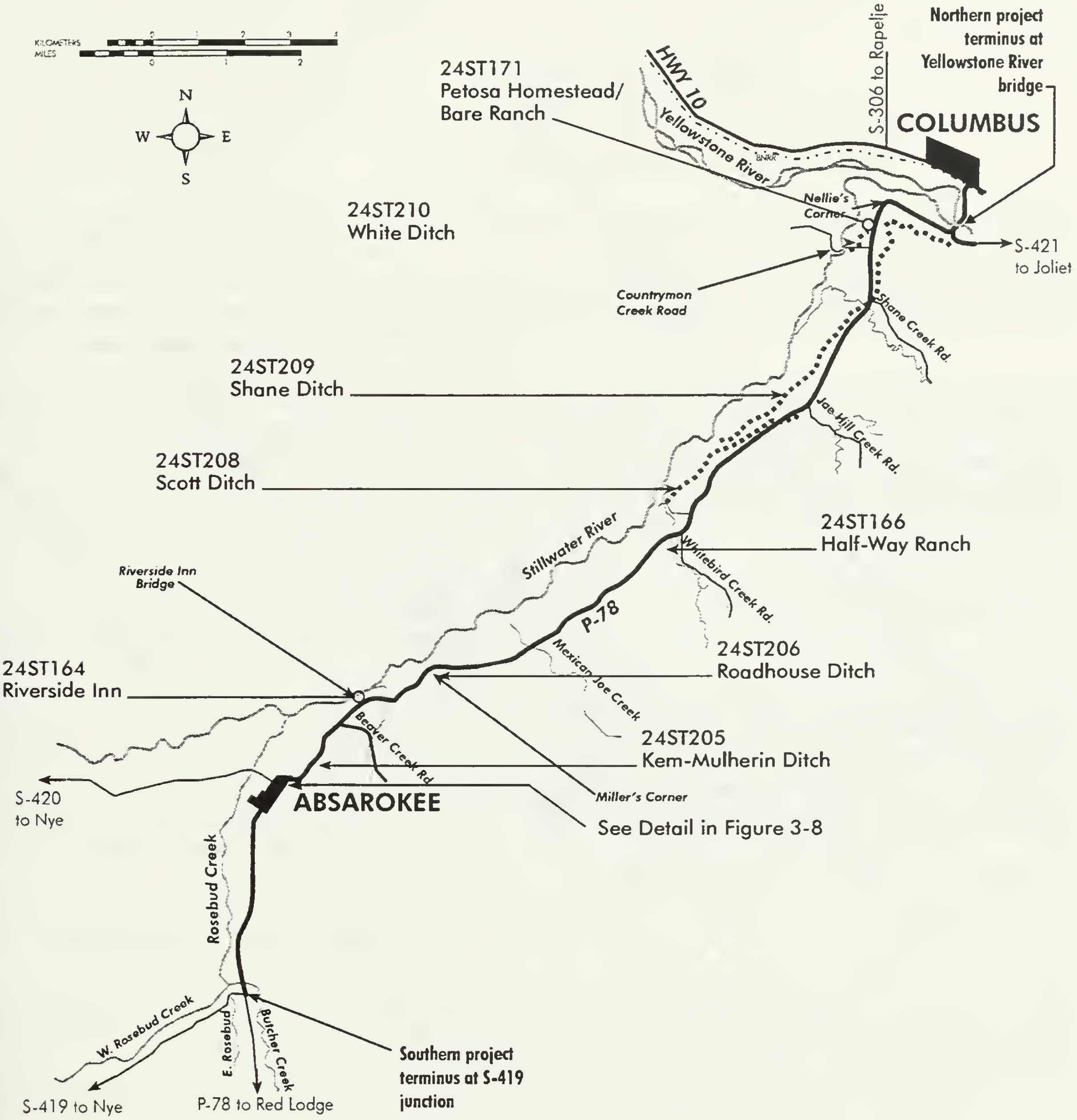
Site No.	Name	Description	NRHP Recommendations	SHPO Date of Correspondence
24ST76	Oliver Hovda House	House	Listed	6/11/99 report
24ST164	Riverside Inn	The Former Barn Structure	Eligible	6/1/89 letter
24ST166	Half-Way Ranch	Ranch	Eligible	5/26/00 letter
24ST171	Petosa Homestead/Bare Ranch	Cobblestone House	Eligible	9/9/92 letter
24ST176	Lee Simonson House	House	Eligible	7/18/88 report
24ST178	Odd Fellows Hall	Recreation Hall	Eligible	7/18/88 report
24ST181	Mandeville Agency	Office	Eligible	7/18/88 report
24ST183	Antique Store	Store	Eligible	7/18/88 report
24ST184	Gold Block	Structure	Eligible	7/18/88 report
24ST185	Campbell House	House	Eligible	7/18/88 report
24ST187	Howland Building	Structure	Eligible	7/18/88 report
24ST190	Cobblestone Garage	Garage	Eligible	7/18/88 report
24ST199	Blackstone/Howland House	House	Eligible	7/18/88 report
24ST205	Kem-Mulherin Ditch*	Ditch	Eligible	8/10/88 letter
24ST206	Roadhouse Ditch*	Ditch	Eligible	8/10/88 letter
24ST208	Scott Ditch*	Ditch	Eligible	8/10/88 letter
24ST209	Shane Ditch*	Ditch	Eligible	8/10/88 letter
24ST210	White Ditch*	Ditch	Eligible	8/10/88 letter

Source: HRA 1988; Ethnoscience, July 1999; MDT correspondence, May 26, 2000.

* Part of the Lower Stillwater River Historic Irrigation District.

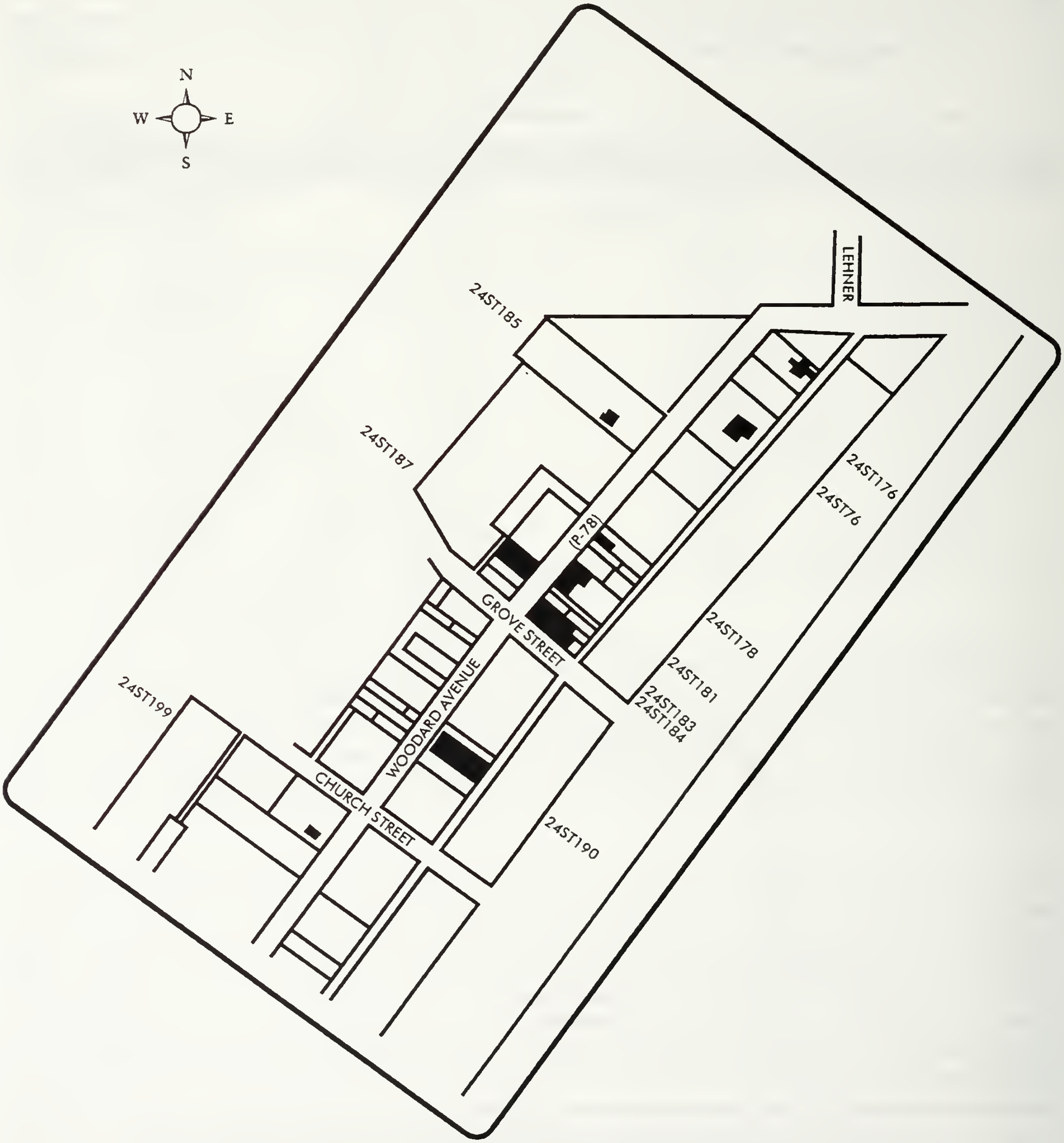
The Half-Way Ranch (24ST166) is adjacent to the existing right-of-way of P-78 about 11.2 km (7 mi) south of Columbus on the west side of the highway. Named for being about half way between Absarokee and Columbus, this property was found to be ineligible for the National Register of Historic Places during cultural resource surveys conducted in 1988 and 1999. However, due to the recent restoration of the residence back to most of its original appearance, and the compilation of additional site history, MDT and SHPO have re-evaluated this site and have determined it to be eligible for listing on the national register.

An MOA between MDT, FHWA, SHPO and the property owner regarding both the land and structures potentially impacted at the Half-Way Ranch was signed on January 31, 2001. This document stipulates five measures specifically dealing with the Half-Way Ranch: (1) MDT will prepare all necessary NRHP forms in consultation with the SHPO prior to letting of the construction contract, and if the site is placed on the NRHP, MDT will coordinate and cover all costs for fabricating a sign that describes the history and significance of the site; (2) if the property is not placed on the NRHP, MDT shall contact and coordinate with the Historic American Building Survey (HABS) to determine appropriate recordation procedures and ensure that all documentation is completed and is distributed to the proper entities prior to the relocation of the residence on the property; (3) MDT will relocate residence F-1, outbuilding F-2, and Garage F-3, out of the ROW and construction limits with as little alteration as possible, and this relocation will be conducted by a professional mover of historic buildings; (4) new silver maple, cottonwood, and spruce trees will be planted on the site; and (5) if a dispute arises regarding this MOA, FHWA shall consult with the objecting party to resolve the dispute and further comments shall be requested from the Advisory Council on Historic Preservation if disputes are not deemed resolvable by any consulting party. A copy of this MOA can be found in Appendix C.


KILOMETERS
MILES
0
1
2
3
4
0
1
2
N
W
E
S
24ST171
Petosa Homestead/
Bare Ranch
HWY 10
Yellowstone River
BNRR
S-306 to Rapelje
Northern project
terminus at
Yellowstone River
bridge
COLUMBUS
24ST210
White Ditch
Nellie's
Corner
S-421
to Joliet
Countrymon
Creek Road
Shane Creek Rd.
24ST209
Shane Ditch
Joe Hill Creek Rd.
24ST208
Scott Ditch
24ST166
Half-Way Ranch
Stillwater River
Whitebird Creek Rd.
Riverside Inn
Bridge
P-78
24ST206
Roadhouse Ditch
24ST164
Riverside Inn
Mexican Joe Creek
24ST205
Kem-Mulherin Ditch
Beaver Creek Rd.
S-420
to Nye
ABSAROKEE
Miller's Corner
See Detail in Figure 3-8
Rosebud Creek
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project
terminus at S-419
junction
S-419 to Nye
P-78 to Red Lodge

Source: Historical Research Associates, "Cultural Resource Inventory," July 1988.

Figure 3.7: Cultural Resources Eligible for the National Register of Historic Places


N
W
E
S
LEHNER
24ST185
24ST187
24ST176
24ST76
(P-78)
GROVE STREET
24ST178
24ST181
24ST183
24ST184
WOODARD AVENUE
24ST199
CHURCH STREET
24ST190

Source: Historical Research Associates, "Cultural Resource Inventory," July 1988.

Figure 3.8: Cultural Resources Eligible for the National Register of Historic Places, Absarokee Detail

The 1988 cultural resources survey, and the 1999 review, identified the following 10 buildings along P-78 through Absarokee as eligible for listing on the National Register of Historic Places:

Oliver Hovda House (24ST76)
Lee Simonson House (24ST176)
Odd Fellows Hall (24ST178)
Mandeville Agency (24ST181)
Antique Store (24ST183)
Gold Block (24ST184)
Campbell House (24ST185)
Howland Building (24ST187)
Cobblestone Garage (24ST190)
Blackstone/Howland House (24ST199)

The property known as the Stillwater Garage (24ST186) was found to be eligible for the National Register of Historic Places in 1988, but the 1999 survey determined it to be ineligible due to recent modifications that compromised the site's integrity. Also, the property known as the Joe Hill burial site (24ST170) was found ineligible for listing in 1999 due to the installation of a transmission line and right-of-way road that appear to have destroyed the cairn.

Other properties outside of Absarokee that were found eligible for the National Register of Historic Places include the southern portion of the Riverside Inn and the barn (24ST164), and the cobblestone house of the Petosa Homestead/Bare Ranch (24ST171). The Petosa Homestead/Bare Ranch was determined ineligible in the 1988 review by Historic Research Associates, but after a reevaluation the cobblestone house was determined eligible in 1992. The Ethnoscience survey in 1999 determined the eligibility of the cobblestone house to be unchanged from the 1992 determination.

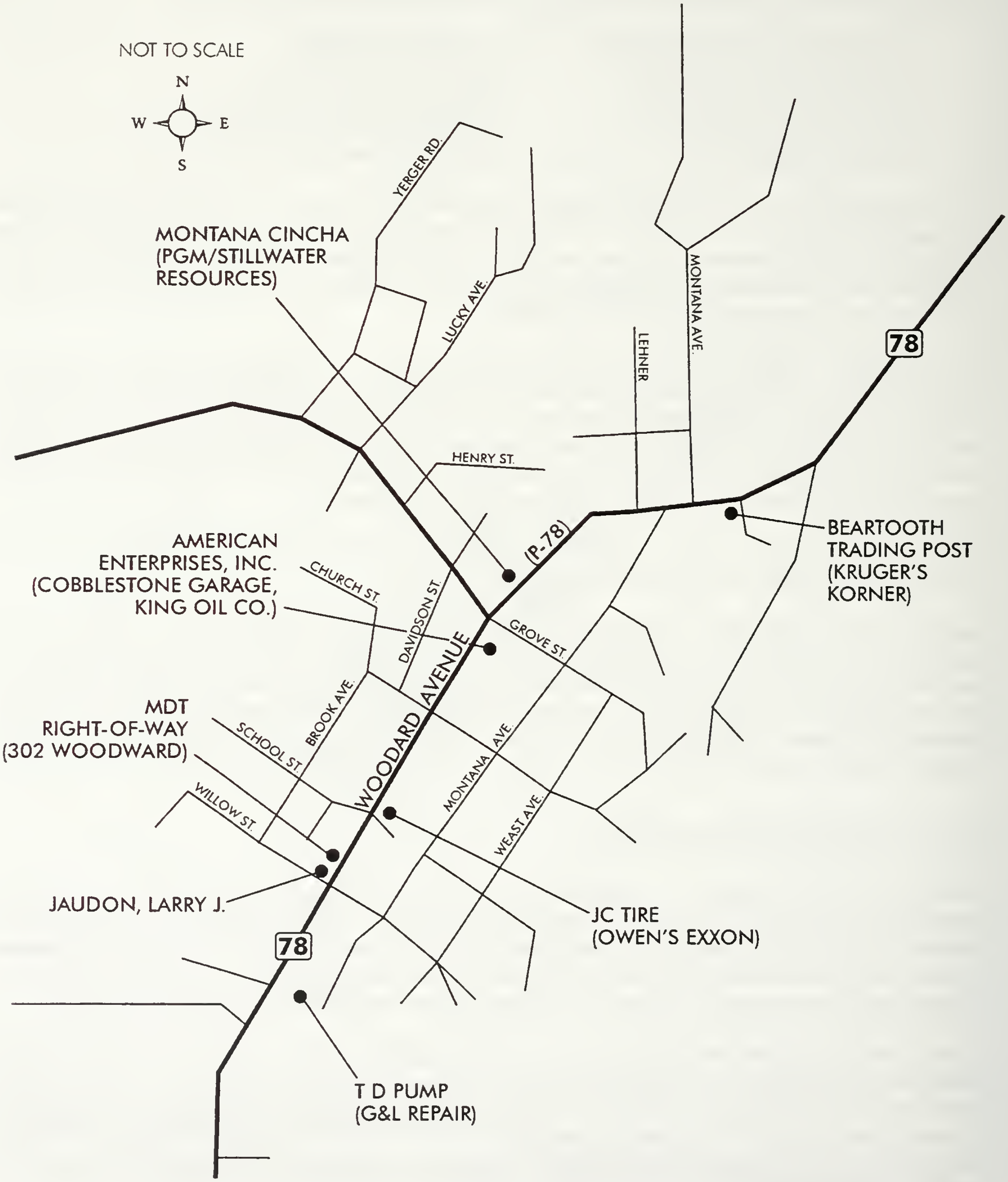
In addition to these sites, a historic isolate (five wooden wheels and a metal axle of what appears to be an old wagon) was identified in the Nellie's Corner area.

During the June 1999 tribal consultation the Crow noted that the Stillwater River valley is a very important area among the Crow Indians and contains many culturally sensitive sites. Information about most of these sites is not shared with anyone, and keeping them confidential is a high priority. No physical evidence of cultural sensitivity was found in the 1988 or 1999 surveys. However, the Crow Tribe indicated that Shane Ridge, near Nellie's Corner, is a sensitive area and is possibly considered a traditional cultural property (TCP) by their tribe.

3.15 HAZARDOUS WASTE SITES

Braun Intertec Environmental, Inc. performed an environmental hazards study of Absarokee in 1992. MDT requested the removal of an abandoned fuel pump island within the right-of-way at 302 Woodard Avenue. In addition, MDT authorized Braun Intertec Environmental to review the Montana Department of Health and Environmental Sciences Underground Storage Tank program files to evaluate the status of reported hydrocarbon releases and cleanup activities at documented leaking tank sites in Absarokee.

In June 1999 an environmental hazards study was undertaken by Dames & Moore to update the 1992 field survey of Absarokee. The study area included commercial properties adjacent to a 1.7 km (1.1± mi.) section of P-78 in Absarokee. A total of 16 sites in the general area where investigated as to their potential to be impacted by the P-78 proposed improvements. Of the 16 sites investigated, only seven sites were located near P-78 (Woodard Avenue). Figure 3.9 illustrates the location of these sites, and Table 3.13 provides a summary of them.


NOT TO SCALE
N
W
E
S
MONTANA CINCHA (PGM/STILLWATER RESOURCES)
YERGER RD.
LUCKY AVE.
MONTANA AVE.
LEHNER
78
HENRY ST.
(P-78)
BEARTOOTH TRADING POST (KRUGER'S KORNER)
AMERICAN ENTERPRISES, INC. (COBBLESTONE GARAGE, KING OIL CO.)
CHURCH ST.
DAVIDSON ST.
GROVE ST.
WOODARD AVENUE
MDT RIGHT-OF-WAY (302 WOODWARD)
BROOK AVE.
SCHOOL ST.
MONTANA AVE.
WEAST AVE.
WILLOW ST.
JAUDON, LARRY J.
JC TIRE (OWEN'S EXXON)
78
T D PUMP (G&L REPAIR)

Source: Dames & Moore, "Environmental Hazards Study P-78 Highway Project," June 29, 1999.

Figure 3.9: Absarokee Hazardous Waste Sites

Table 3.13: Summary of Potential Hazardous Materials Sites

Site Name and Location	Current Storage Tanks	Former Storage Tanks / Date Removed	Confirmed Release	Contamination Type	Cleanup/ Closure
Duggarout/Hard Rock (MDT right-of-way) 302 Woodard Ave.	None	Two 600-gallon underground tanks; piping in 1992	Yes (soil)	Gasoline	Closed; no further action 12/8/93
Larry J. Jaudon 306 Woodard Ave.	None	Two underground tanks / 1993	No	NA	NA
Beartooth Trading Post (Kruger's Korner) Hwy 78 (north end of Absarokee)	One underground tank split into gas, diesel, and premium	Two (1,000- and 2,000-gallon) underground tanks / date unknown	Yes (soil and groundwater)	Gasoline	Open LUST site, all impacted soils removed. Active service station
Montana Cincha (Stillwater/PGM Resources) Woodard Ave.	None	Eight tanks removed (575 to 10,000 gallon), 3 gas, 2 diesel, 3 unknown	Yes (soil and groundwater)	TPH	Inactive/open LUST site, inactive since 8/22/95.
JC Tire (Owen's Exxon) Box 426, Woodard Ave.	None (unused pump islands; no dispensers)	Unknown (former tanks believed to have been removed)	Yes (soil and groundwater)	Benzene and TPH diesel in groundwater	Open LUST site; three PVC monitoring devices on site
American Enterprises, Inc. (King Oil Co./Old Cobblestone Garage) 19 Woodard Ave.	Three 1,000-gallon underground tanks (2 gas, 1 diesel); three aboveground tanks (2 fertilizer, 1 empty)	Five tanks (closed); two underground storage tanks	Yes (soil and groundwater)	BTEX in groundwater	Inactive
TD Pump, (adjacent to G&L Repair) Woodard Ave.	One 12,000-gallon aboveground tank (gas)	Possible underground piping; one tank possibly removed	NA	NA	Active

Source: "Environmental Hazards Study P-78 Highway Project, Absarokee, Stillwater County, Montana," Dames & Moore, Inc. June 29,1999.

LUST — leaking underground storage tank. NA — information not available. BTEX — benzene, toluene, ethylbenzene, xylene. TPH — total petroleum hydrocarbons.

3.16 VISUAL RESOURCES

Visual and aesthetic resources in the study area are described in this section. Visual characteristics are identified for the highway driver and for viewer groups along the proposed project.

Existing Visual Characteristics

The proposed project corridor lies between the foothills of the Beartooth Mountains and the upper Yellowstone River valley. Characteristic landscape components include deep river valleys, dissected uplands with level to gently rolling surfaces, and steep bluffs. Mountain views become more dominant in the southern part of the project area. Beginning in an area of rolling, grass-covered hills; the proposed project would traverse a valley featuring irrigated agriculture and riparian woodlands, and it would end in the Yellowstone Valley. P-78 provides access to the northern parts of the Beartooth Mountains, along the streams adjacent to the highway, and serves local residents, farmers, and ranchers.

The project area is within three different valleys. From south to north, they are the Rosebud Creek, the Stillwater River, and the Yellowstone River valleys. The existing highway traverses the easterly and southerly sides of these valleys. Foreground views in the corridor consist of flat to gently sloping bottomlands, which support agricultural and riparian vegetation cover, and adjacent bluffs. Middleground views feature steep bluffs with vegetation changing from grassland in the south to ponderosa pine woodland in the north. Background views are limited to views of the Beartooth Mountains and the hills north of the Yellowstone River.

The visual environment consists of all areas visible from the highway, as well as all areas from which the highway is visible. Based on public meetings conducted by MDT, three landscape units were identified:

(1) from the southern end of the proposed project northward through the town of Absarokee,

(2) from the north end of Absarokee to Nellie's Corner, and

(3) from Nellie's Corner to the Yellowstone River bridge.

These landscape units generally coincide with the three valleys previously mentioned. Each landscape unit has a readily identifiable visual character based on landscape components.

Visual Character. Landscape components help define visual character. The components of a landscape are its landform (topography) and land cover, which includes water resources, vegetation, and human development. Descriptions of a landscape's visual character hinge on two attributes: pattern elements and pattern character. Pattern elements describe the primary visual attributes of form, line, color, and texture. The visual contrast between a project and its visual environment are described in terms of pattern character. Combinations of pattern elements created four aspects of pattern character: dominance, scale, diversity, and continuity. While landforms and human development are similar through all three landscape units, the spatial character of the landforms, water resources, and vegetation differ. These key factors define each landscape unit. From south to north, spatial character becomes more enclosed, and vegetation becomes more diverse.

A partially enclosed spatial character characterizes the Rosebud River valley. Distant views of the Beartooth Mountains are dominant near Absarokee, but become less significant to the south due to dense riparian woodlands. The bold, complex mountain forms contrast with the rounded, curving forms of the bluffs. The landscape has a smooth texture and uniform tawny color on the upland, which contrasts with the dense riparian woods found along the bottomlands. While water resources have an important effect on the visual character of this valley, the East Rosebud Creek is not visible due to the dense riparian woods. Development includes scattered homes, agricultural activities, and low-density urban development in Absarokee. The pattern character of this landscape unit offers a high degree of diversity resulting from the contrasts between landforms and vegetation types.

The Stillwater River valley is clearly defined, with its flat bottomlands contrasting with steep, high bluffs. Views are more enclosed, especially toward the northern end of the valley. The southern end of the valley has a more open spatial character and has limited views of the mountains to the south. Rock outcrops on the bluff contrast with the smooth texture and curving lines of the valley bottoms and uplands. Vegetation is more varied and includes riparian cottonwood stands along the river, scrub grassland and ponderosa pine woodlands on the bluffs, and agricultural crops with windbreaks in the bottomlands. Water resources include the river, tributary streams, and irrigation ditches. While the latter two are not a major visual component, there are occasional views of the river. Scattered homes and agricultural activities characterize developments. The pattern of this landscape unit can be described as diverse due to the variations in vegetation colors and textures, and as having a high degree of continuity as a result of the repeated forms of the bluffs on either side of the valley.

The Yellowstone River valley has a strong sense of enclosure, due to the large bluffs and abundant woodlands, both riparian and upland. There are no mountain views in this unit, and views of the hills north of the river are limited. Small agricultural fields bordered by dense woods restrict views to the immediate foreground. The Yellowstone River is visible only from the northern terminus of the proposed project. Rural residential development is more prevalent in this area. The existing P-78 alignment's proximity to the large bluffs introduces bold forms, which are visually dominant. Contrasts between the pine forests, agriculture fields, and riparian woodlands create a strong sense of diversity in this landscape unit.

Visual Quality. The landscape is considered to have high visual quality. Its landscape components have striking characteristics that convey visual excellence. Three criteria are useful for evaluating visual quality: vividness, intactness, and unity. Vividness is the visual power of landscape components as they combine in striking or distinctive patterns. Intactness is the visual integrity of the landscape and its freedom from encroaching elements. Unity is the visual coherence and compositional harmony of the landscape as a whole. None of these three criteria by itself is equivalent to high visual quality; all three must be high to indicate high visual quality.

All three landscape units have a great degree of vividness due to the valley, bluff, and mountain components. These elements provide great visual dominance. All three landscape units offer a moderately high degree of intactness and unity. Visual quality in this area of the proposed project ranges form moderately high to high, depending on the amount of encroachment from residential development in the corridor.

All viewer groups rate visual quality as high. This is especially true for local residents, whose concerns have been expressed at public meetings. Highway users and recreationists also rate visual quality in this proposed project's area as high.

Visual Sensitivity

While P-78 is not specifically designated as a scenic route, it is frequently used by outdoor recreationists, vacation homeowners, and other leisure travelers. Others, who are attentive to this route's visual setting, include local area ranchers, commuters, and general highway users traveling to destinations beyond this proposed project's vicinity. The highway study area lies within a rural, pastoral environment. Developments are limited, and they are generally visually compatible with the natural environment. These factors result in a high degree of visual sensitivity.

Viewer Groups

Two types of viewer groups would be affected by the proposed project — highway users, who have a view of the adjacent landscape, and highway viewers, who have a view of the highway. Highway users include local, commercial, and tourist/recreational auto traffic, as well as bicyclists. Drivers, passengers, and bicyclists each would have a different view experience. Highway viewers include local residents, recreationists, and commercial traffic. These two viewer groups have different view durations and expectations about the visual experience of the road.

Highway users' visual expectations would vary according to the activity related to driving. Drivers en route to recreational activities would have a higher visual expectation than those driving to work or similar activity. A viewer's ability to perceive the landscape is affected by his activity. Drivers are presumable concentrating on the road ahead, and therefore are less aware of views; passengers are more likely to pay attention to their visual surroundings.

Highway viewers have a longer view duration, and thus have a greater degree of visual sensitivity to changes in the landscape. This is especially true of outdoor recreationists, whose activities are closely related to scenic quality. Viewer sensitivity to changes in the landscape would be highest among highway viewers, recreational drivers and outdoor recreationists.

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES & MITIGATION

This chapter follows NEPA and MEPA guidance for analyzing the probable social, economic, and environmental effects of the alternatives being considered, and it describes the measures proposed to mitigate adverse impacts. This chapter provides the analytical basis for evaluating the comparative merits of the alternatives. The No-Build Alternative would provide continued maintenance of P-78, but no highway improvements. Both the 9.6 m (32 ft) Cross Section Alternatives and the 10.8 m (36 ft) Cross Section Alternatives would include highway improvements. The Preferred Alternative is Alternative B with the 9.6 m (32 ft) cross section.

4.1 LAND USE IMPACTS

The analysis of the land use impacts consider impacts within the study area and consistency with local plans. A number of studies have been conducted to assess the relationship between land use and transportation. Some contend that an increase in highway capacity induces new growth, while others see transportation investments as a response to the changes in land use and growth patterns already occurring. In practice, neither view is independently accurate. As illustrated in Figure 4.1, the relationship between land use and transportation is cyclical.

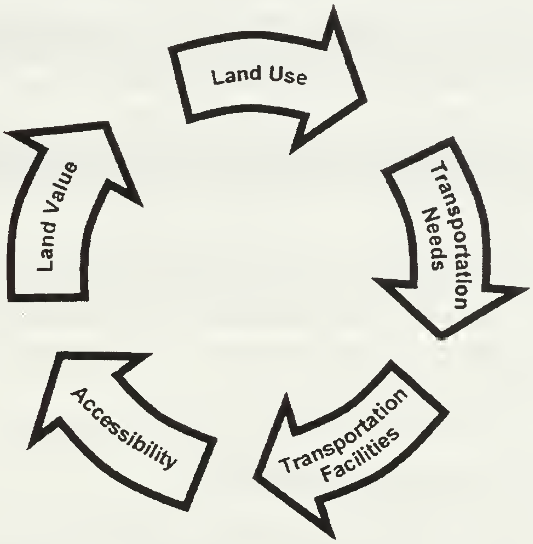


Figure 4.1: Land Use / Transportation Relationship

No-Build Alternative

There would be no land use impacts under the No-Build Alternative. Existing and planned land use conditions and trends would not be expected to change. The No-Build Alternative would not be consistent with the *Stillwater County Master Plan,* the *Stillwater County Overall Economic Development Plan,* or the *Columbus Area Master Plan* because these plans identify or support major reconstruction of P-78 as the primary route serving southern Stillwater County.

Build Alternatives — 9.6 m (32 ft) Cross Section

Increased opportunities for recreation and tourism at Yellowstone National Park and the Absaroka-Beartooth Wilderness Area, as well as the expansion of Stillwater Mine activities, have made the Stillwater River valley an attractive place for land uses other than strictly agricultural use. Towns like Columbus, Absarokee, Fishtail, and Red Lodge have grown as a result of the diversification of population and employment interests, and consequent land use changes. As the level of population and employment rises, so too does the need for improved transportation facilities to provide safe and efficient access to increased recreational and employment opportunities. As these areas continue to develop and to increase the available offering of goods and services, they become even more attractive to people who may work in different areas (Billings, for instance), but who desire a more rural environment to raise a family or possibly retire. These types of growth pressures increase land values and influence changes in historic land uses, and the cycle continues as the area evolves and transforms in response to market forces.

Two recent studies were highlighted during a session on induced travel at the annual Transportation Research Board meeting in January 2000. These reports found that there was an increase in vehicle travel with an increase in roadway expansion; however, they concluded that this traffic increase resulted from population growth, increased income, and other demographic factors, not from the highway construction. Conference participants agreed that highway expansion is intended to accommodate population growth and economic expansion, and that some of the new capacity is anticipated to be used by the new population, but such expansions are not intended to promote such growth.

In the case of the proposed improvements to P-78, even though no additional lanes are proposed, the geometric improvements would still result in some additional capacity in the peak periods because of overall improvements in safety and operation of the facility. This minimal increase in capacity would not be of a magnitude to induce unplanned growth or development in the study area. The proposed project is not intended to induce growth, but instead to bring the condition of the road up to current standards in order to accommodate existing and anticipated growth. Population growth will occur independent of the completion of the proposed project.

Further, the area plans cited in the *Stillwater County Master Plan,* the *Stillwater County Overall Economic Development Plan,* and the *Columbus Area Master Plan* were used to gauge the consistency of the 9.6 m (32 ft) Cross Section Alternatives with adopted plans. These alternatives would be compatible with existing and planned land uses because improvements to P-78 were an anticipated and supported transportation element in those plans.

Build Alternatives — 10.8 m (36 ft) Cross Section

These alternatives would be consistent with local area plans and would have the same land use impacts described for the 9.6 m (32 ft) cross section.

Mitigation

No mitigation is anticipated.

4.2 FARMLAND IMPACTS

No-Build Alternative

The No-Build Alternative would not impact prime farmlands, or farmlands of statewide importance.

Build Alternatives — 9.6 m (32 ft) Cross Section

Table 4.1 provides the approximate impacts to prime farmland, prime if irrigated farmland, and farmland of statewide importance throughout the entire corridor for both cross sections.

The farmland impacts for Alternatives A1, B1, and D1 range from a total of 68.8 ha (170.0 ac) to 77.3 ha (191.2 ac). No impacts to prime if irrigated farmland would occur under these alternatives.

The climbing lane south of Absarokee would impact 0.1 ha (0.3 ac) of farmland of statewide importance. This impact is included in figures presented in Table 4.1 for the 9.6 m (32 ft) Cross Section Alternatives.

Alternative B1 would impact 7.9 ha (19.7 ac) of land designated as prime farmland and would result in the conversion of approximately 69.4 ha (171.5 ac) of farmlands of statewide importance, resulting in greater impacts than either Alternative A1 or D1.

Table 4.1: Potential Farmland Impacts

	9.6 m (32 ft) Cross Section Alternatives		
	Alternative A1	**Alternative B1**	**Alternative D1**
Prime Farmland	3.2 ha (7.9 ac)	7.9 ha (19.7 ac)	0.4 ha (1.0 ac)
Prime if Irrigated Farmland	0	0	0
Statewide Important Farmland	71.4 ha (176.4 ac)	69.4 ha (171.5 ac)	68.4 ha (169.0 ac)
	10.8 m (32 ft) Cross Section Alternatives		
	Alternative A2	**Alternative B2**	**Alternative D2**
Prime Farmland	3.6 ha (8.9 ac)	8.2 ha (20.3 ac)	0.4 ha (1.0 ac)
Prime if Irrigated Farmland	0	0	0
Statewide Important Farmland	75.0 ha (185.3 ac)	72.5 ha (179.1 ac)	71.5 ha (176.7 ac)

Source: MSE-HKM, Memorandum, December 17, 1999.

Alternative D1 would have the least amount of impact to prime or statewide important farmlands.

Irrigation ditches along P-78 would be impacted by the roadway widening and realignment. These ditches would be relocated in consultation with ditch owners.

In accordance with the Farmland Protection Policy Act (7 U.S.C. 4201 et seq.), a Farmland Conversion Impact Rating form (#AD-1006) was completed for all alternatives. Each alternative would result in less than 160 total points ranging from 41 points for the No-Build Alternative up to 84 points for Alternative B2; therefore, under the provisions of 7 CFR 658.4 (c)(2), no additional consideration for protection is necessary. (A copy of the #AD-1006 form for the Preferred Alternative is included in Appendix E.) As shown on the form, new right-of-way for the Preferred Alternative (Alternative B1) would require converting approximately 7.9 ha (19.7 ac) of prime farmlands and 69.4 ha (171.5 ac) of farmlands of statewide importance. This information was forwarded to Natural Resources Conservation Service for their review as a cooperating agency on this project.

Build Alternatives — 10.8 m (36 ft) Cross Section

Table 4.1 provides the approximate impacts to prime farmland and farmland of statewide importance for each of the 10.8 m (36 ft) Cross Section Alternatives. The farmland impacts for Alternatives A2, B2, and D2 with this wider cross section alternative would range from a total of 71.9 ha (177.7 ac) to 80.7 ha (199.4 ac). The climbing lane south of Absarokee would impact 0.3 ha (0.7 ac) of farmland of statewide importance, included in the figures presented in Table 4.1 for the 10.8 m (36 ft) Cross Section Alternatives. Alternatives A2, B2, and D2 would have greater farmland impacts under this cross section alternative than under the 9.6 m (32 ft) cross section. However, the 10.8 m (36 ft) Cross Section with Alternative D2 would have less impact than the 9.6 m (32 ft) Cross Section with Alternatives A1 or B1. The 10.8 m (36 ft) Cross Section Alternative with Alternatives A2 and B2 would have greater farmland impacts than all the 9.6 m (32 ft) Alternatives. The irrigation ditch impacts would be similar to the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation

Mitigation of farmland impacts would include the use of best management practices to limit disturbance and control erosion, and to reclaim disturbed vegetation within the construction limits. (See Section "4.4 Transportation Right-of-Way and Relocations" for more information on right-of-way acquisitions and compensation.)

Impacted irrigation ditches would be relocated in consultation with ditch owners to minimize impacts to farming operations. Impacts to historic irrigation ditches would be mitigated under terms stipulated in the 1989 MOA between MDT, FHWA, and SHPO regarding the Lower Stillwater River Historic Irrigation District.

4.3 SOCIAL IMPACTS

Social considerations revolve around issues of access and impacts to public facilities, including parklands, public safety, community cohesion, and environmental justice.

Community Characteristics

Per the Montana Department of Commerce, population projections for Stillwater County indicate that the population is expected to increase by 31 percent by 2020 and by 39 percent by 2025. It is estimated that the current population of Stillwater County is 8,340, with the population being 9,580 in 2010, 10,940 in 2020 and 11,580 in 2025.

The rate of population growth in Absarokee and Columbus is expected to be approximately 2% annually per the *Stillwater County Master Plan* (1997). In 2010 the population of the Absarokee area is anticipated to be 2,756 and in the Columbus area to be 3,944.

Approximately 70 percent of the County's population is located in the Absarokee-Columbus area, evidence supports this percentage as in 1990 roughly 71 percent of the population was located there and in 2010, 70 percent is estimated to be located in the Absarokee-Columbus area. None of the alternatives would induce growth or development because population growth is projected to occur independent of the proposed P-78 improvements.

No-Build Alternative. As discussed above, growth in the county including this corridor is projected to occur regardless of which alternative is selected. Under the No-Build Alternative the safety concerns raised during the public involvement process would remain. The accident rate for the P-78 corridor would continue to be high because no safety improvements would be made. Overall, these concerns would negatively impact the quality of life for residents throughout the study area. There would be no capacity improvements to P-78 and therefore in the future, as traffic increased, the level of service (LOS) would deteriorate to LOS D, and increased congestion would be experienced by the community.

Build Alternatives — 9.6 m (32 ft) Cross Section. None of the 9.6 m (32 ft) Cross Section Alternatives would induce growth or development because population growth is projected to occur independent of the proposed P-78 improvements. The rural communities within the Stillwater River valley would continue to rely on P-78, which provides vital access to goods, services, and recreational and employment opportunities not located in the immediate vicinity. Each of the alternatives considered would improve safety and access to public facilities. Safety issues identified at the public meetings, such as inadequate pedestrian facilities near the Absarokee schools, the lack of a school bus turnaround, the need to accommodate slower moving farm equipment, and the provision of safe locations for school buses to stop, would be addressed. As a result, opportunities for increased community cohesion between residential areas through this corridor would be created. The improved horizontal and vertical alignment of all alternatives would be the major factor in reducing accidents in this corridor. Providing shoulders and wider travel lanes would further contribute to a reduction in accidents. A model (as described in Appendix B) was used to predict the effect on accident rates of varying travel lane and shoulder widths on roads with good geometrics. When comparing the existing typical section to an improved roadway cross section with wider (3.6 m / 12 ft) travel lanes and 1.2 m (4 ft) shoulders, there is a predicted reduction in accidents of 33.4 percent. The proposed south climbing lane south of Absarokee would provide safe passing of slower vehicles.

Access to properties along P-78 would be maintained. Access to properties might be modified or in some cases improved, approaches would be paved, and mailbox turnarounds would be provided, which would enhance safety. Realignments at Nellie's Corner would have the greatest access impacts. Currently 30 residential properties access P-78 in the Nellie's Corner area. Table 4.2 provides information on the number of properties that would require access modifications. Depending on the alternative, some properties would continue to have direct access onto the new P-78 realignment, while other properties would have indirect access because they would use the old P-78 to access the new P-78 alignment.

Table 4.2: Residential Access Changes

Alignment Alternative	Direct Access	Indirect Access
A	27	3
B	30	0
D	9	21

Source: MSE-HKM, Memorandum, June 28, 1999.

Alignment Alternative B, would provide all residents with direct access onto the realigned P-78. Alignment Alternative A would result in indirect access for three properties, and Alignment Alternative D would result in indirect access for 21 properties.

The 9.6 m (32 ft) Cross Section Alternatives under Alignment Alternatives A, B, and D would provide additional capacity; therefore, the roadway would operate at an acceptable level, LOS C, in 2021. Compared to the No-Build Alternative, there would be less congestion resulting in faster travel times through the corridor. In addition, the provision of a south climbing lane south of Abasrokee would provide additional travel time savings because faster vehicles could safely pass slower moving vehicles climbing this hill. This time savings is estimated as 34.2 seconds per vehicle during the peak hour for those traveling to or beyond the S-419 intersection.

Build Alternatives — 10.8 m (36 ft) Cross Section. None of the 10.8 m (36 ft) Cross Section Alternatives would induce growth or development because population growth is projected to occur independent of the proposed P-78 improvements. As with the 9.6 m (32 ft) Alternatives, the improved horizontal and vertical alignment of all alternatives would be the major factor in reducing accidents in this corridor. Using a model to predict differences in accident rates between the existing typical section and an improved roadway cross section with 3.6 m (12 ft) travel lanes and 1.8 m (6 ft) shoulders, there is a predicted reduction in accidents of 36 percent. The additional 0.6 (2 ft) shoulder width in this cross section alternative is predicted to reduce accidents by an additional 2.6 percent, when compared to the narrower 9.6 m (32 ft) Cross Section Alternatives.

Impacts to community character and residential access changes would be the same as those indicated for the 9.6 m (32 ft) cross section. However, the wider shoulder in the 10.8 m (36 ft) Cross Section Alternative would result in a slightly better level of service. Although in 2021 a LOS C is predicted, a LOS B operation would be maintained until 2017, which is three years longer than for the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation. Major driveway access changes would be coordinated with impacted property owners.

Environmental Justice

Executive Order 12898, issued in February 1994, requires federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority populations and low-income populations in the United States. Title VI of the Civil Rights Act of 1964 stipulates that any federal action cannot discriminate against any person based on “race, color, or national origin”.

No-Build Alternative. There would be no environmental justice or Title VI implications under the No-Build Alternative.

Build Alternatives — 9.6 m (32 ft) Cross Section. Beyond assistance afforded to any dislocated person, no special mitigation would be required from an environmental justice or Title VI standpoint. From guidance provided by the Department of Transportation’s “Final Environmental Justice Strategy,” it can be determined that there is no “disproportionately high and adverse effects on minority or low-income populations.” This determination was made based on the following criteria:

- the adverse impact from the project would **not** be predominantly borne by a minority population and/or low-income population; and,
- the adverse impact suffered by the minority or low-income population would **not** be more severe or greater in magnitude than the adverse impact that would be suffered by the non-minority population and/or a non-low-income population.

Build Alternatives — 10.8 m (36 ft) Cross Section. As with the 9.6 m (32 ft) Cross Section Alternatives, there would be no environmental justice impacts.

Community and Public Facilities

No-Build Alternative. The No-Build Alternative would leave community and public facilities as they currently exist.

Build Alternatives — 9.6 m (32 ft) Cross Section. Under Alignment Alternatives A, B, and D, no community or public facilities and services would experience negative impacts as a result of the project, but they could experience enhanced accessibility due to the anticipated safety and operational improvements of P-78. Fire, emergency, and law enforcement services would benefit from increased travel efficiency. School bus operations would benefit with safer stopping areas and turnarounds. The public and community facilities along Woodard Avenue (P-78) in Absarokee would not be physically impacted because the roadway and sidewalk improvements would be within the existing right-of-way. However, improved sidewalks along Woodard Avenue would improve access to these facilities.

Build Alternatives — 10.8 m (36 ft) Cross Section. Impacts to community and public facilities would be the same as those identified for the 9.6 m (32 ft) Cross Section Alternatives.

Parks and Recreational Facilities

No-Build Alternative. No impacts would occur to the MacKay athletic field, the baseball field at the Absarokee High School, or the approach roads onto P-78 from the three fishing access sites. As a result, access would not be improved for the fishing sites under the No-Build Alternative, but existing access would continue. The approach to the Swinging Bridge fishing access site has been identified as a location with a concentration of accidents. The No-Build Alternative would not provide an opportunity to improve safety at this location.

Build Alternatives — 9.6 m (32 ft) Cross Section. The following impacts to parks and recreation facilities would be the same under Alignment Alternatives A, B, and D.

The Absarokee High School baseball field, discus field, and shot put field within the southern end of the project area would be avoided by implementing the following measures:

- shifting the roadway centerline away from the ballfield,
- using a "V" ditch to reduce the drainage area, and
- reducing the required right-of-way in this location.

By reducing the right-of-way width, MDT would not need to acquire any new right-of-way along the baseball field.

The MacKay athletic field on the west side of P-78 includes a football stadium, track, and discus field. The Preferred Alternative would impact the athletic field, requiring 140 sq m (1,506 sq ft) of right-of-way and an additional 403 sq m (4,390 sq ft) for a construction permit. Although the track and football field would not be impacted, the discus field would need to be relocated, and an internal access road would be eliminated between the track and P-78. In addition, the approach road from the athletic field onto P-78 would be modified, and the school crossing between the high school and the athletic field would have new signing and pavement markings to improve it to current standards. The MacKay athletic field is owned by the school district and has restricted access to this facility by fencing and gating the access road.

Impacts to parklands must be evaluated under Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. 303). Pursuant to Section 4(f), the Secretary of Transportation shall not approve any transportation project which requires the use of any publicly owned land from a public park, recreation area, wildlife or waterfowl refuges, or any historic sites of national, state, or local significance as determined by federal, state, or local officials having jurisdiction thereof, unless:

- there is no feasible and prudent alternative to the use of such land; and,
- such project includes all possible planning to minimize harm to such area resulting from such use.

Requirements of Section 4(f) only apply to a property if the entire public is permitted visitation at any time. Section 4(f) does not apply when visitation is permitted only to a select group and not the entire public. The MacKay athletic field primarily serves students of the school and not the public at large. Fencing and gating across the access road to this facility restricts public access; therefore, Section 4(f) would not apply.

The baseball field does meet the definition of a Section 4(f) property because it is a public facility with unrestricted access. However, the 9.6 m (32 ft) Cross Section Alternatives, incorporating the design measures specified above, would avoid this property. Noise and construction impacts were assessed, and it was determined that there would be no constructive or temporary use of this property. Consequently, Section 4(f) involvement would be avoided at the ballfield.

Farther north along the Stillwater River and north of Absarokee are several fishing access sites. These access sites would not be affected by the proposed project, and Section 4(f) would not apply.

Access to fishing areas is provided from roadways that intersect with P-78. The intersection of West Whitebird Creek Road and an unnamed road 2.6 km (1.6 mi) south of Joe Hill Creek Road would provide access to the White Bird fishing access and Swinging Bridge fishing access, respectively. Alignment Alternatives A, B, and D would provide an opportunity to improve the safety at these intersections, especially at the Swinging Bridge access location, which has been identified as an area with a higher concentration of accidents.

The Fireman's Point fishing access site would be accessed from Countryman Creek Road, which intersects P-78. All of the alternatives would improve the intersection of P-78 and Countryman Creek Road, continuing the direct access to P-78, thereby providing better access and the potential for improved safety compared to the No-Build Alternative.

Build Alternatives — 10.8 m (36 ft) Cross Section. Impacts to parks and recreation facilities would be the same as those identified for the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation. To avoid impacting the baseball field, no construction activity or property acquisition would occur beyond the existing right-of-way on the east side of P-78.

Impacts to the MacKay athletic field would be mitigated by using a "V" ditch or culverts to minimize the amount of additional right-of-way needed at the athletic field.

4.4 TRANSPORTATION RIGHT-OF-WAY AND RELOCATIONS

No-Build Alternative

With the exception of the two early acquisitions identified in Chapter 3, there would be no impacts to current private properties under the No-Build Alternative. Existing right-of-way would be maintained and would not be expected to change. There would be no impact on any utility lines under the No-Build Alternative.

Build Alternatives — 9.6 m (32 ft) Cross Section

Right-of-Way Impacts and Relocations. The majority of the proposed alignment from S-419 to Shane Creek would generally follow the existing alignment. However, necessary horizontal and vertical realignments would result in right-of-way impacts and residential relocations along this segment. There would also be impacts in the Nellie's Corner vicinity, depending on the alignment alternative.

Table 4.3 provides relocation information for the 9.6 m (32 ft) Cross Section Alternatives.

Table 4.3: Right-of-Way Impacts and Relocations for the 9.6m (32 ft) Cross Section Alternatives

		Relocations:		
Alternative	Additional ROW	Residences	Outbuildings	Wells / Springs
A1	81.8 ha (202.1 ac)	3*	3	8 wells / 1 spring
B1	80.5 ha (198.9 ac)	3*	3	9 wells
D1	81.6 ha (201.6 ac)	4*	5	9 wells / 1 spring

Source: MSE-HKM, Memorandum, December 17,1999.

*Does not include the two early acquisitions identified in Chapter 3.

Impacts from the climbing lane south of Absarokee pertaining to new right-of-way would be 0.1 ha (0.3 ac) and are included in the figures presented in Table 4.3.

The relocated residences in Alternatives A1 and B1 would be the historic Half-Way Ranch residence and two residential trailers. The relocated residences in Alternative D1 would be the historic Half-Way Ranch residence, two residential trailers and one modular home. These residences would be either relocated on site or within the corridor. The outbuildings for all alternatives are sheds.

The Preferred Alternative, B1, would require a total of 80.5 ha (198.9 ac) in new right-of-way from 97 separate parcels, and the relocation of three residences (plus the two early acquisition properties identified in Chapter 3). The Preferred Alternative, is one of the alternatives with the fewest relocations, would require the least amount of new right-of-way. Alternative D1 has the greatest relocation impact because it requires two more outbuildings and one additional residence than Alternatives A1 and B1.

Temporary construction permits would also be required throughout the project corridor for all alternatives. These areas would be identified during final design and negotiated with individual property owners. These areas would be for temporary use during construction and would revert back to the property owner after construction.

MDT has also identified impacts to residential or on-farm investments such as water wells and irrigation ditches. The Preferred Alternative would require relocating a total of 9 domestic water wells and numerous segments of private irrigation ditches throughout the corridor. Impacts to ditches that are part of the Lower Stillwater River are discussed in "4.14. Impacts on Archaeological and Historic Resources."

The cairn believed to be the location of the burial of Joe Hill should not be impacted because it would be outside the project construction limits and right-of-way for Alternatives A1, B1, and D1. However, the site is near the right-of-way and construction limits; therefore, coordination is ongoing with the Crow Tribe to identify any concerns relating to this grave site.

Utilities. An overhead electric power distribution line is located along the western side of P-78 throughout the project corridor. While updating their lines, the local power companies relocated much of this line according to the plans presented under the previous "Draft Environmental Assessment" for this project. Because the plans have changed since that time, further relocation would be necessary in some locations.

Telephone lines are located along the entire alignment. Due to changes in the horizontal and vertical alignment of the roadway, as well as relocated irrigation facilities, many of these lines would require relocation.

Natural gas lines are also intermittent along the alignment. These would require relocation wherever they were in conflict with the proposed alignment.

Build Alternatives — 10.8 m (36 ft) Cross Section

Right-of-Way Impacts and Relocations. The residential and outbuilding relocation impacts resulting from Alternatives A2, B2, and D2 would be the same as those identified in Table 4.3 for the 9.6 m (32 ft) Cross Section Alternatives, A1, B1, and D1 respectively.

Right-of-way impacts required for the 10.8 m (36 ft) Cross Section Alternatives would be as follows for the various Alternatives A2, B2, and D2 as described in Table 4.4. The 10.8 m (36 ft) Cross Section Alternatives require more right-of-way than the 9.6 m (32 ft) Cross Section Alternatives. This additional amount varies by alternative but ranges from 3.8 ha (9.4 ac) to 5.3 ha (13.1 ac).

The climbing lane right-of-way impacts would be 0.3 ha (0.7 ac) and is included in the figures presented in Table 4.4.

Table 4.4: Right-of-Way Impacts and Relocations 10.8 m (36 ft) Cross Section Alternatives

		Relocations:		
Alternative	Additional ROW	Residences	Outbuildings	Wells / Springs
A2	87.1 ha (215.2 ac)	3*	3	9 wells, 1 spring
B2	84.3 ha (208.3 ac)	3*	3	10 wells
D2	85.7 ha (211.7 ac)	4*	5	10 wells, 1 spring

Source: MSE-HKM, Memorandum, December 17,1999.

*Does not include the two early acquisitions identified in Chapter 3.

Alternatives A2, B2, and D2 would impact one additional well over those identified for the 9.6 m (32 ft) Cross Section Alternatives. There would also be a moderate increase in impacts to irrigation ditches compared to the 9.6 m (32 ft) Cross Section Alternatives.

As with the 9.6 m (32 ft) alternative, the Joe Hill grave site should not be impacted because it is outside the construction limits and right-of-way for Alternatives A2, B2, and D2.

Utilities. Utility relocations would be the same as impacts under Alternatives A1, B1, and D1 and correspond to Alternatives A2, B2, and D2 respectively.

Mitigation

All lands needed for the right-of-way on the proposed project would be from private ownership and would be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (P.L. 91-646) and the Uniform Relocation Act Amendments of 1987 (P.L. 100-17). Compensation for right-of-way acquisitions would be made at fair market value for the "highest and best use" of the land.

The following residential relocation payments would be made under the conditions outlined in P.L. 91-646:

- moving costs
- replacement housing payments in the form of purchase supplements (in the case of a price differential, increased mortgage and interest costs, or closing costs), rental assistance, or down payment

No person may be displaced from his or her residence unless a comparable replacement dwelling that is found to be "decent, safe, and sanitary" is available and provided for the displaced occupant.

Impacted wells would be addressed in coordination with well owners and MDT engineers. The well owners would have a choice of three options:

1. wells that would not be physically impacted could be left within the right-of-way (as long as they are outside of the clear zone*, and the well owners could be provided with an easement;
2. for wells that would be impacted, MDT would retain a driller to drill a new well, or
3. the well owner could hire a private contractor to do the replacement and have MDT reimburse the contractor for services rendered.

Utility relocations would be coordinated with these lines' owners and would be done before any construction. Notification of service interruptions due to these relocations would be the responsibility of these utility lines' owners. Such disruptions are normally minor and are usually limited to the customers on the affected lines.

4.5 ECONOMIC IMPACTS

Per the *Stillwater County Montana Overall Economic Development Plan 1989*, the agricultural sector is expected to remain variable according to supply and demand, the tourism industry is increasing and is expected to continue, and the mining sector is expected to continue to increase and be one of the fastest growing sectors. Construction, retail trade, services, finance, insurance and real estate are all expected to improve in the southern half of Stillwater County. Overall, mining and service sectors of the economy are believed to have the greatest potential for generating additional employment and income in Stillwater County.

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* Clear zone: an unencumbered designated distance from the travel lane that provides space for the recovery of vehicles leaving a roadway out of control; clear zones are site specific and are determined based upon roadway geometry, traffic volume, and speed.

No-Build Alternative

The No-Build Alternative would not provide an opportunity to improve safety in the corridor. Economic impacts as a result of the No-Build Alternative would include the cost and time lost in the movement of goods and services due to accidents and increased congestion.

There would be no physical impacts to commercial businesses in the corridor.

Build Alternatives — 9.6 m (32 ft) Cross Section

The long-term impacts of the proposed project improvements under the 9.6 m (32 ft) Cross Section Alternatives would be safer and more efficient conditions for motorists and pedestrians, resulting in a time and cost savings to individuals and businesses. The project's planned improvements would benefit businesses and residents in the area surrounding the highway, because P-78 is the main route available for employees to access major employers in Columbus, as well as the Stillwater Mine in Nye. Also, businesses in Absarokee depend on P-78 for their deliveries from suppliers and to customers.

Businesses that have expressed concern about potential impacts to their business operations or were identified as impacted are described below. The impacts would be the same for Alignment Alternatives A, B, and D because the proposed improvements would not vary by alternative. South of Absarokee the following business impacts were identified.

> *Convenience Store and Service Station* — Located at the intersection of S-419 and P-78, this new business is set back from the intersection. Although additional right-of-way would be required at this property, there would be no impact to current business operations.
>
> *Veterinary Clinic* — The owners of this business, which is north of Lover's Lane, were concerned that it would be difficult for vehicles pulling horse trailers to access the clinic. To safely accommodate this type of vehicle, the Lover's Lane approach would be built with a longer landing area at the intersection of P-78. Additional right-of-way would be required at this property.
>
> *F & H Mine Supply* — Located south of Absarokee High School, this business supplies equipment to mines and therefore must accommodate truck parking for loading or unloading supplies. The business owner expressed concern about the need for additional right-of-way, surface drainage in the roadway ditch, and access. Although additional right of way would be needed in this location, there would be no impact to the store building. Adjustments to the site layout might be needed to accommodate the truck delivery operations.

Within Absarokee the proposed improvements, including roadway reconstruction and sidewalk improvements, would be undertaken within the existing right-of-way. Along Woodard Avenue (P-78), parallel parking would continue to be allowed on both sides of Woodard Avenue with the exception of the intersection at Grove Street. To improve sight visibility and to enhance pedestrian safety at this location, design features might be considered that would eliminate parking at the corners of this intersection. Impacts to businesses along Woodard Avenue would be limited to addressing building overhangs that encroach into the existing right-of-way. No other impacts on businesses south of Kruger's Corner have been identified. From Kruger's Corner west to the end of town, several businesses would be impacted as described below:

> *Kruger's Korner Store and Service Station* — This business is across from Lehner Avenue on the south side of Woodard Avenue (P-78). The canopy and the pad at the gasoline pumps currently encroach into the existing highway right-of-way. No new right-of-way would be required; therefore, the convenience store building would not be impacted. The ability to maintain the functionality of the gasoline pumps or to relocate this function on site would be assessed during the detail design of this project.
>
> *Absarokee Hardware* — The hardware store is west of Lehner Street on the north side of P-78. Currently, customers can angle park within the highway right-of-way in front of this business. With the proposed improvements, no additional right-of-way would be required at this location; however, to provide sidewalks within the existing right-of-way, customers would need to parallel park.
>
> *Dew Drop Inn* — This seasonal fast food business is east of Lehner Street on the north side of P-78. Although no right-of-way would be needed from this property,. the access would be reconstructed to provide two defined approaches. Also, a construction permit could be needed during construction.
>
> *Stillwater Rafting* —This seasonal rafting business leases property east of Lehner Street on the north side of P-78 as a meeting place for raft trips. The right-of-way needed in this location might necessitate the modification of the current parking layout; but would not impact business operations.
>
> *Car Wash* — This business is east of Lehner Street on the south side of P-78. Although additional right- of-way would not be required in this location; a construction permit might be needed.

North of Absarokee impacts to farming and ranching operations were identified by some property owners. The concerns regarding the Miller's Livestock shipping facility are as follows:

> This business is north of Beaver Creek. Earlier roadway design impacts were minimized by redesign in this location to avoid the livestock pens. Access to this business would be reconfigured to provide both a northern and a southern access. The southern access would reduce the area available currently used to store hay.

Although right-of-way would be needed from several businesses in the corridor, there would be no long-term impacts to commercial buildings or facilities, with the possible exception of Kruger's Korner Store and Service Station.

Alignment Alternative B would have the greatest impact on farmlands because at Nellie's Corner (where the alternatives have the greatest realignment) Alignment Alternative B would impact more prime farmlands. Throughout the corridor for all alternatives, a number of farming operations would be impacted through the loss of farmable land, small outbuildings, and relocation of segments of irrigation ditches. None of these impacts is anticipated to be substantial enough to affect the economic viability of the farming operations, and all acquisitions and relocations would be coordinated under the provisions outlined in "4.4. Transportation Right-of-Way and Relocations."

Build Alternatives — 10.8 m (36ft) Cross Section

Economic impacts associated with the 10.8 m (36 ft) Cross Section Alternatives would be the same as those discussed for the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation

To minimize adverse commercial business impacts, conceptual designs were sensitive to the existing and planned businesses within the project corridor. Business owners were consulted to understand their operations in order to develop designs that would address their concerns.

MDT would provide relocation payments and services required under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources are available to all relocated residents and businesses without discrimination. Compensation for right-of-way acquisition would be made at fair market value for the "highest and best" use of the land.

Businesses, farms, and/or nonprofit organizations displaced by a MDT project are also eligible for moving costs including:

personal property loss,

expenses in finding a replacement location, and

reestablishment expenses.

4.6 PEDESTRIAN AND BICYCLE FACILITY IMPACTS

No-Build Alternative

The existing sidewalk conditions would not be improved, and pedestrian safety issues in Absarokee would not be addressed.

Build Alternatives — 9.6 m (32 ft) Cross Section

In Absarokee providing a 2.1 m (7 ft) sidewalk on the east side of Woodard Avenue to connect the high school to the elementary school on Willow Street would improve safety for the elementary schoolchildren who must walk back and forth between the two schools for lunch every day.

Through Absarokee sidewalks would be added or improved on both sides of Woodard Avenue from Willow Street to Montana Avenue. The sidewalks would be designed to standards that are in compliance with the Americans with Disabilities Act (ADA) requirements. These improvements would address the safety concerns about the local residents in wheelchairs along Woodard Avenue.

Providing a shoulder on P-78 outside the town of Absarokee would improve safety for pedestrians or bicyclists on the roadway.

All of the 9.6 m (32 ft) Cross Section Alternatives would provide 1.2 m (4 ft) shoulders along with the roadway improvements and therefore would be similar. The proposed design includes rumble strips in the shoulders and therefore the area outside the rumble strips that is usable for bicyclists would be reduced to 0.8 m (2.5 ft). According to the AASHTO *Guide for the Development of Bicycle Facilities* (1999), a 1.2 m (4 ft) area is recommended when designing for bicycle use. However, since there is little bicycle use anticipated in the corridor, MDT is not proposing to deviate from its policy to provide rumble strips that improve safety for motorized vehicles.

Build Alternatives — 10.8 m (36 ft) Cross Section

For this alternative the proposed sidewalk improvements in Absarokee would be the same as for the 9.6 m (32 ft) Cross Section Alternatives, with the same pedestrian benefits.

With the provision of shoulders, the safety of pedestrians and bicyclists on the roadway would be improved by Alignment Alternatives A, B, and D. All alternatives would provide 1.8 m (6 ft) shoulders along with the roadway improvements. Unlike the 9.6 m (32 ft) Cross Section Alternatives, the 10.8 m (36 ft) Cross Section Alternatives would provide sufficient area in the shoulders to accommodate a rumble strip and the AASHTO recommended 1.2 m (4 ft) area for bicycle use.

Mitigation

No mitigation is anticipated.

4.7 AIR QUALITY IMPACTS

No-Build Alternative

This proposed project is located in an unclassified/attainment area of Montana for air quality under 40 CFR 81.327. As such, this proposed project is not covered under the U.S. Environmental Protection Agency's "Final Rule" of November 24, 1993, on air quality conformity. Therefore, both the No-Build Alternative and Alignment Alternatives A, B, and D would comply with Section 176(c) of the Clean Air Act (53 U.S.C. 7521 (a)), as amended.

The No-Build Alternative has the worst level of service for all alternatives; therefore, it would have the worst air quality impact. Carbon monoxide (CO) is the principal pollutant of concern when considering air quality impacts from vehicle emissions. CO emissions increase with decreasing speeds. Consequently, with roadways operating at poorer levels of service, traffic speeds would be lower and CO emissions would be higher than facilities operating at better levels of service.

Build Alternatives — 9.6 m (32 ft) Cross Section

The 9.6 m (32 ft) Cross Section Alternatives would comply with Section 176(c) of the Clean Air Act, as amended.

Road improvements under Alignment Alternatives A, B, and D under the 9.6 m (32 ft) Cross Section Alternative would provide a better level of service than the No-Build Alternative; therefore, impacts on air quality would be less than the No-Build Alternative.

Build Alternatives — 10.8 m (36 ft) Cross Section

The impacts from this alternative would be the same as for the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation

No mitigation is anticipated.

4.8 NOISE IMPACTS

According to the Federal Aid Policy Guide, "Procedures for Abatement of Highway Traffic Noise and Construction Noise" (23 CFR 772), the project is classified as a Type I project; noted as a "proposed Federal or Federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes."

As identified in Chapter 3, most noise sensitive receptors along the study corridor fall under category B, which include residences, parks, recreation areas, medical facilities, churches, and hotels/motels. The exterior noise abatement criteria described in Chapter 3 apply to outdoor areas that have regular human use and where a lowered noise level would benefit the public. These criteria do not apply to the entire tracts surrounding an activity, but only to those portions on which activity normally occurs, for example, an outdoor patio or stationary recreational equipment.

MDT identifies noise impacts as occurring when noise levels come within one decibel of the noise abatement criteria of 67 dB(A) for category B sites, or when noise levels increase 10 decibels over existing levels. A level of 66 dB(A) is normally used to indicate an impacted receiver.

Existing and design year 2020 noise levels were predicted for 69 receivers along the project corridor for all alternatives. These sites are representative of the potential residential receivers along the project corridor (including lots) and are not meant to be all-inclusive. Since no homes exist on the lots, noise modeling points were randomly chosen and may not represent the exact locations of future homes.

The predicted noise levels are presented in Table 4.5 and

Table 4.6 Since the southern segment of the corridor has a common proposed alignment for all alternatives, Table 4.5 shows the predicted noise levels for this segment.

Table 4.6 represents sites in the northern end of the corridor.

Table 4.5: Calculated Existing and 2020 Noise Levels in dB(A) Leq(h) for S-419 to Shane Creek

Receiver	Note	Existing (1997)	2020 No-Build	2020 Alternatives
R 1 1180R		52	56	57
R 2 1540R		60	64	65
R3 1580L		61	65	66*
RZ 1720R	Lot	54	57	60
R4 2460L		54	58	58
RY 3960L	Lot	57	61	63
R5 4100R		57	61	61
RX 4740	Lot	52	56	57
R6 4800R		52	55	57
RW 5080L	Lot	55	59	59
R7 5440L		59	62	63
R8 5580R		59	62	62
R9 6649L		55	59	60
RV 6800R	Lot	55	59	61
R10 7329R		60	64	63
RU 7400R		59	62	63
R12 8520L	Historic Riverside Inn	57	61	60
R13 8680L		58	62	61
R14 8740L		59	62	61
R15 8840L		59	62	61
R16 8880L		61	65	64
RT 10860L		53	57	61

Receiver	Note	Existing (1997)	2020 No-Build	2020 Alternatives
R17 11740		53	57	60
R18 15440		61	65	64
RS 15660R	Lot	55	59	62
R19 15940		60	63	64
R20 16020		59	63	63
RR 16140R	Lot	56	60	60
RQ 16260L	Lot	54	58	61
R21 16360		57	60	61
R23 16460		55	59	59
R24 16620		55	58	58
R25 16640		60	64	62
RP 16700L	Lot	56	60	64
R26 16900		56	60	60
R27 17100		58	62	60
RO 20260		56	60	61
RAA 20500		56	60	59
RN 21840L	Lot	60	63	65
RM 21940L	Lot	57	61	62
R28 22020		58	62	63
R29 22380		58	62	61
R31 22480		55	59	62
R30 22500L		59	62	62
R32 22500R		53	57	59
RL 22920L	Lot	56	60	62
RK 23180L	Lot	57	61	63
RI 23400R	Lot	56	60	59
RJ 23420L	Lot	55	59	59
R4F Station	Ballfield	64	68*	70*

Source: Noise Analysis: Columbus – Absarokee MDT Memorandum, July 11, 2000 (original dated March 22, 1999); Noise Analysis Addendum: Columbus – Absarokee, September 1, 1999.

*Indicates noise impact.

Table 4.6: Calculated Existing and 2020 Noise Levels in dB(A) Leq(h) for Shane Creek to Yellowstone River Bridge (Nellie's Corner)

Receiver	Note	Existing (1997)	2020 No-Build	2020 Alternative A	2020 Alternative B	2020 Alternative D
RH 23560L	Lot	56	59	59	59	59
RG 23740R	Lot	55	58	62	62	62
RF 223920L	Lot	57	61	60	60	58
R33 24280		57	61	59	59	52
R42 24670L	Historic Petosa/Bare Ranch	52	55	55	58	47
R34 25300		56	59	48	63	43
RE 25860L	Lot	52	55	53	59	47
R35 26120		60	64	61	64	52
RD 26300R	Lot	53	56	63*	60	62
R36 26340		61	64	64	62	54
R37 26440		64	68*	64	64	56
R38 26480		55	59	63	63	62
R39 26640		55	59	61	61	57
R40 26750		57	61	59	59	57
R41 26780		61	65	61	61	59
RC 26860L	Lot	67*	71*	66*	65	58
RB 26900L	Lot	59	63	62	62	61
R43 26920		55	58	61	61	62
RA 27000L	Lot	56	59	61	61	61

Source: Noise Analysis: Columbus – Absarokee, MDT Memorandum, July 11, 2000 (original dated March 22, 1999); Noise Analysis – Addendum: Columbus – Absarokee; MDT June 18, 1999.

*Indicates noise impact.

No-Build Alternative

In 2020 noise levels in general are predicted to increase 3–5 dB(A) over existing noise levels due to predicted increases in traffic. Three sites identified along the corridor (one residence, one undeveloped lot, and the ballfield) would be impacted in 2020. One of these sites, an undeveloped lot at Nellie's Corner, currently exceeds the noise abatement criteria. At the three impacted sites, the increase in noise level from 1997 to 2020 would only be four decibels.

Build Alternatives — 9.6 m (32 ft) Cross Section

The total number of sites impacted under the 9.6 m (32 ft) Cross Section Alternatives in 2020 would vary by alignment alternative (see Table 4.7 below).

Table 4.7: Summary of Noise Impacted Sites in 2020

Alignment Alternative	Number of Sites Impacted in 2020
No-Build	3
A	4
B	2
D	2

At Nellie's Corner Alignment Alternatives B and D would have fewer sites impacted by noise than the No-Build Alternative. Alignment Alternative A would have four sites impacted by noise. Under Alignment Alternative A site RD 26300 would be impacted because predicted noise levels would increase 10 dB(A), from 53 dB(A) in 1997 to 63 dB(A) in 2020. Even with a 10 dB increase, the 2020 noise level would not exceed the noise abatement criteria. Compared to the No-Build Alternative, the noise levels at the impacted sites for Alignment Alternative A would be 1 to 2 dB higher at two sites, 7 dB higher at one site, and 5 dB lower at one site.

Alignment Alternative B would have two sites impacted by noise, the same as Alignment Alternative D. Compared to the No-Build Alternative, the noise levels at these sites would be 1–2 dB higher.

Alignment Alternatives B and D would have fewer impacted sites than the No-Build Alternative due to shifts in the alignment away from some residences. Alignment Alternative A would have one more impacted site than the No-Build Alternative.

Build Alternatives — 10.8 m (36 ft) Cross Section

The noise impacts would be the same as for the corresponding alignment alternatives under the 9.6 m (32 ft) Cross Section Alternatives because the travel lane would be the same distance to the receivers.

Mitigation

When traffic noise impacts occur, MDT is required to examine possible mitigation measures for their abatement. In many states noise barriers or berms are typically constructed to reduce highway traffic noise for high-density housing along highways and interstates. In Montana, however, such mitigation is rarely reasonable or feasible because of low-density housing and the need to perpetuate access. The Columbus-Absarokee corridor is an unlimited access facility that precludes the use of noise barriers or berms. Other mitigation measures, such as changes to vertical or horizontal alignment, or to traffic operations, were considered.

Measures of traffic operations include reducing and enforcing speed limits, restricting use by heavy trucks, or restricting times that such vehicles can travel in the corridor. Because the route is a state highway that serves a mining area, and there are no alternative routes to carry this traffic, traffic mitigation measures are not feasible.

Changes to vertical or horizontal alignment were considered; however, the proposed alignment would maximize safety while minimizing environmental impacts. Many receivers would actually see a reduction in noise levels over existing or future no-build noise levels. Re-designing the project with only noise impacts in consideration is not reasonable.

Although noise impacts are identified for the design year on this project, there are no reasonable and feasible solutions for mitigating them at present. Compared to existing conditions, noise levels would not increase more than 10 dB for any of the receivers along the project corridor under any alternative.

4.9 WATER QUALITY IMPACTS

No-Build Alternative

The No-Build Alternative would not have notable water quality impacts. However, the Absarokee water system improvements, which are included in the Build Alternatives for the P-78 highway project, would not be undertaken in this alternative.

Build Alternatives — 9.6 m (32 ft) Cross Section

Impacts to water quality for all of the alternatives would be the same. See Section "4.4. Transportation Right-of-Way and Relocations" for well and spring impacts.

Construction of Alignment Alternative A, B, or D would cause both temporary soil surface disturbances, and short-term siltation into six drainage areas that require bridge and/or culvert replacement, including Shane Creek, Joe Hill Creek, Beaver Creek, Butcher Creek, Mexican Joe Creek, and Whitebird Creek. Reconstructing P-78 would also require channel modifications at Whitebird, Butcher, and Beaver Creeks. (See also Section "4.11. Waterbody Modifications and Wildlife Impacts"). Impacts from construction activities would be temporary in nature and short-term in duration. MDT's current design and construction specifications are intended to minimize water quality impacts. A hydraulic analysis has been completed at all drainage crossings to ensure that the reconstruction project would avoid unnatural sedimentation above the drainage crossings and scour below the crossings. Additional analysis including detailed hydraulic modeling (HEC-RAS) has been completed at the major drainage (stream) crossings. A large diameter culvert 2.4 m (8.0 ft) is planned at Mexican Joe Creek which is dry during the majority of the year. New bridges are planned at Butcher Creek, Beaver Creek, Whitebird Creek, Joe Hill Creek, and Shane Creek. These structures would allow the natural stream grade to be maintained without restriction of the channel. Work in these creeks would be allowed only during periods specified by regulatory resource-management agencies (i.e., Montana Fish, Wildlife and Parks; see also the "Permits Required" section following). Effects from sediment "run-off" during the construction periods would be minimized by best management practices noted in the mitigation discussion below. All work would also be in accordance with Section 319 of the Water Quality Act of 1987 (P.L. 100-4), as amended.

The Yellowstone River, Stillwater River, Joe Hill Creek, West Rosebud Creek, and Butcher Creek are listed on the 1996 303(d) List, which is a compilation of impaired and threatened waterbodies in need of water quality restoration. These waterbodies will be evaluated by the MDEQ Monitoring and Data Management Bureau and will be subject to the provisions of Section 303(d) of the federal Clean Water Act (CWA), including TMDL development. Any impacts to water quality caused by the project would also be addressed using the mitigation techniques indicated below.

Road maintenance activities can impact water quality. Regular maintenance activities include the application of herbicides, mowing, and winter maintenance, such as snowplowing and the application of sand and deicing salts. Unscheduled maintenance activities can include hazardous materials spills from accidents and debris removal from slumps and landslides. These maintenance activities have the potential to result in the introduction of sediment, materials and chemicals into streams and wetlands.

The proposed cross section alternatives with shoulders reduce the amount of shaded area along the corridor, and thereby could reduce snow drifting, icing, and sanding requirements. MDT's current maintenance practices have been developed in consideration of these potential impacts to water quality.

Debris disposal from slumps and landslides are not a concern because these occurrences are minimal or non-existent in the P-78 corridor. Debris disposal such as large animal road kill are removed to areas offsite and are properly disposed. For roadway accidents involving hazardous materials, quick response teams from state agencies and private entities are used to prevent and mitigate potential impacts. Fine material from winter's sanding operations are picked up from roadway ditches where possible. For sanding operations near streams and over bridges, the present practice is to use motorized "pickup" brooms to remove sand. In addition, grass growth and proper mowing practices and mowing height are promoted to provide vegetation buffers between the roadway and waterbodies. Recovered winter sanding material and rock debris is removed and stockpiled for use as fill or rip rap material, or this material is disposed offsite away from streams and wetland areas.

Best management practices are used for erosion control. Any major landslide occurrences or erosion near waterbodies are repaired using an engineered design. These maintenance activities are treated as individual projects and are subject to the National Environmental Policy Act/Montana Environmental Policy Act process, the Clean Water Act and state permitting requirements.

In terms of the use of chemical additives for deicing and herbicides, MDT's Maintenance Division is on the "cutting edge" of studies concerning proper chemical dilution rates to prevent damage to wildlife habitat, including threatened and endangered aquatic species. The results of these studies are to be included as standards or guidelines for the American Association of Highway and Transportation Officials.

In addition, MDT is working with other states to develop best management practices for winter maintenance operations for Montana and a procedure manual will be published in the near future.

No adverse impacts to water quality are anticipated pertaining to remaining wells (see Section "4.4. Transportation Right-of-Way and Relocations" for well relocation impacts) or to proposed improvements for the Absarokee water system.

Build Alternatives — 10.8 m (36 ft) Cross Section

Impacts to water quality for this alternative would be the same as those identified for the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation

Encroachments into watercourses would be avoided or minimized to the extent possible. MDT would re-establish a permanent desirable vegetation community over all landform surface areas disturbed by construction for this project. This action would be in accordance with M.C.A. 7-22-2152 and 60-2-208, and MDT would develop a set of revegetation guidelines that must be followed by the contractor. These specifications would include instructions on seeding methods, dates, mix components, and the types and amounts of mulch and fertilizer. Seed mixes would include a variety of species to ensure that areas disturbed by construction would be immediately stabilized by vegetative cover. The special seeding provisions developed for this project would be forwarded to the Stillwater County Weed Control District offices for approval.

Control would be exercised during construction through the use of erosion and sediment control features, such as fiber mats, catch basins, silt fences, and sediment barriers to prevent any material or excavation from falling into any watercourses. If any material did enter a watercourse, it would be removed in coordination with official state and federal quality agencies.

An erosion control and sediment plan for the proposed alignment would be submitted to the MDEQ's Water Quality Division in compliance with the Montana Pollutant Discharge Elimination System Regulations (ARM 16.20.1314). Best management practices would be used in the design of this plan, based on guidelines being developed by MDT. The objective is to minimize erosion and sedimentation during and following construction of this proposed project. Examples of erosion control include mulching, temporary or permanent revegetation, surface roughening, and covering road and soil stockpiles. Methods of sedimentation control include vehicle tracking control, slope-length control, and sediment entrapment facilities. The MDEQ Water Quality Division would also evaluate waterbodies listed on the applicable 303(d) List for TMDL compliance.

Culverts and bridges would be designed to accommodate flood flows with no substantial changes in flood elevations. Culverts would be designed to match the hydraulic traits (depth, velocity, and patterns) of natural streams. During the permitting process, culvert and bridge design would be coordinated with appropriate resource and permitting agencies.

4.10 IMPACTS ON WETLANDS AND OTHER WATERS OF THE UNITED STATES

Federal regulations require that wetland impacts be mitigated through avoidance, minimization, or replacement. During the NEPA process and the permitting process, other agencies, such as the Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service, may have an opportunity to comment on permit applications.

MFWP reviews applications for Corps of Engineers' permits under the Section 401 certification process. The review considers potential water quality impacts by an applicant and may recommend that the Corps deny a Section 404 permit if water quality standards would be threatened or not met. See "4.22. Permits Required" and Appendix F for more detailed information about the permitting processes for Section 404.

Alterations to natural stream channels are regulated by MFWP through the 124 SPA permit process. Work permitted by the state in natural streams is covered under the Corps of Engineers General Permit 404.

No-Build Alternative

No impacts to wetlands are anticipated under this alternative.

Build Alternatives — 9.6 m (32 ft) Cross Section

Wetland impacts would result from reconstructing the road, road widening, realigning the existing centerline, and slope flattening. The total area of wetlands in the study area is 6.18 ha (15.26 ac). Total impacts for the 9.6 m (32 ft) Cross Section Alternatives are shown in Table 4.8. Of the 21 wetland sites identified in the project area, wetlands 7, 11, 12, 14, 15, and 19 would not be impacted by any of the alternatives and are not listed in Table 4.8.

Alternative A1 would impact 1.611 ha (3.981ac) of wetlands in the project corridor, or 26 percent of the study area wetlands. Portions of one category I wetland, five category II wetlands, and five category III wetlands would be affected.

Table 4.8: Individual Wetland Impacts for the 9.6 m (32 ft) Cross Section Alternatives

Wetland Number	Wetland BRR Number	Wetland Category	Wetland Area Ha	(Ac)	Alternative A1 Ha	(Ac)	Alternative B1 Ha	(Ac)	Alternative D1 Ha	(Ac)
1	12R	III	0.030	(0.070)	0.002	(0.005)	0.002	(0.005)	0.002	(0.005)
2	13L	III	0.010	(0.030)	0.005	(0.010)	0.005	(0.010)	0.005	(0.010)
3	15L	II	0.008	(0.020)	0.005	(0.010)	0.005	(0.010)	0.005	(0.010)
3	15R	II	*	*	0.003	(0.010)	0.003	(0.010)	0.003	(0.010)
4	22L	III	0.030	(0.070)	0.019	(0.050)	0.019	(0.050)	0.019	(0.050)
5	23LR	III	0.500	(1.240)	0.298	(0.740)	0.298	(0.740)	0.298	(0.740)
6	40L	III	0.100	(0.250)	0.016	(0.040)	0.016	(0.040)	0.016	(0.040)
8	93L	II	0.090	(0.220)	0.191	(0.470)	0.191	(0.470)	0.191	(0.470)
9	230L	II	Shane Creek		0.015	(0.040)	0.015	(0.040)	0.015	(0.040)
10	247L	I	0.210	(0.520)	–	–	0.030	(0.070)	–	–
13	249R	I	1.400	(3.360)	0.852	(2.110)	–	–	–	–
16	252L	III	0.340	(0.840)	–	–	0.085	(0.210)	–	–
17	253R	III	1.060	(2.620)	–	–	0.044	(0.110)	–	–
18	254L	II	0.030	(0.070)	–	–	0.013	(0.030)	–	–
20	269R	II	0.560	(1.400)	0.035	(0.090)	0.035	(0.090)	0.035	(0.090)
20	269L	II	*	*	0.019	(0.050)	0.019	(0.050)	0.120	(0.300)
21	270R	II	0.350	(0.860)	0.151	(0.370)	0.151	(0.370)	0.151	(0.370)
	Total**		**4.700**	**(11.600)**	**1.611**	**(3.981)**	**0.931**	**(2.301)**	**0.860**	**(2.125)**

Source: MSE-HKM, April 2000; BRW, Inc., "Biological Resources Report," 1999.

– No impact

* Sizes for wetland BRR numbers 15 L / R and 269 L / R were combined to total one area. Wetland impacts for these areas are calculated separately for the left (L) and right (R) sides of the alternative alignments.

** Due to rounding, numbers in columns may not total exactly.

Alternative B1 would impact 0.931 ha (2.301 ac) of wetlands, or 15 percent of the study area wetlands. Alternative B1 would impact portions of one category I wetland, six category II wetlands, and seven category III wetlands.

Alternative D1 would impact 0.860 ha (2.125 ac) of wetlands, or 14 percent of the study area wetlands. No category I wetlands would be impacted. Portions of five category II wetlands and five category III wetlands would be affected.

Under Alternatives A1, B1, and D1, Category I, II and III wetlands would be impacted. Nutrient retention, sediment control, flood control, and food chain support functions would be lost as a result of filling portions of the wetlands identified in Table 4.8. Adverse impacts to the function and value of each wetland varies depending upon the wetland acreage lost, and the size, integrity, and connectivity of the wetland impacted.

Build Alternatives — 10.8 m (36 ft) Cross Section

Wetland impacts for the 10.8 m (36 ft) Cross Section Alternatives are presented in Table 4.9.

Alternative A2 would impact 1.806 ha (4.463 ac) of wetlands, or 29 percent of the study area wetlands. Portions of one category I wetland, five category II wetlands, five category III wetlands would be affected.

Alternative B2 would impact 1.029 ha (2.543 ac) of wetlands, or 17 percent of the study area wetlands. Portions of one category I, six category II, and seven category III wetlands would be affected.

Alternative D2 would impact 0.899 ha (2.221 ac) of wetlands, or 15 percent of the study area wetlands. No category I wetlands would be impacted. Portions of five category II and five category III wetlands would be affected.

Under Alternatives A2, B2, and D2, Category I, II, and III wetlands would be impacted. Nutrient retention, sediment control, flood control, and food chain support functions would be lost as a result of filling portions of the wetlands identified in Table 4.9. Adverse impacts to the function and value of each wetland varies depending upon the wetland acreage lost, and the size, integrity, and connectivity of the wetland impacted.

Avoidance/Minimization/Mitigation

Federal regulations require that projects with wetland impacts include an analysis of need for the project, review of practicable alternatives, and proof of wetland impact mitigation. Chapters 1 and 2 of this document provide a detailed description of the project need and alternatives analysis. The following is a description of the wetland impact mitigation. Impact mitigation includes three primary steps: avoidance, minimization, and replacement.

Due to the location of wetlands, natural drainages, and irrigation ditches, a shift in the alignment to the left or right would result in similar impacts; thus, impacts to some wetlands are unavoidable, but mitigation methods would alleviate potential adverse impacts.

Avoidance. The primary measures used to avoid wetland impacts for a linear project include shifting the side of widening and/or steepening side slopes, as long as safety would not be compromised, to narrow construction limits. Wetland sites 7, 11, 12, 14, 15, and 19 were avoided by the 9.6 m (32 ft) and 10.8 m (36 ft) Cross Section Alternatives. Wetland 13 is not impacted by cross section alternatives for the Preferred Alternative B1 or by cross section alternatives for Alternatives D1 and D2. None of the Build Alternatives would have additional wetland impacts associated with the climbing lane south of Absarokee.

Avoiding impacts to wetlands along P-78 would require shifting the reconstruction and realignment from side to side since the wetlands, natural drainages, and irrigation ditches occur on both sides of the existing

Table 4.9: Individual Wetland Impacts for the 10.8-m (36 ft) Cross Section Alternatives

Wetland Number	Wetland BRR Number	Wetland Category	Wetland Area		Alternative A2		Alternative B2		Alternative D2	
			Ha	(Ac)	Ha	(Ac)	Ha	(Ac)	Ha	(Ac)
1	12R	III	0.030	(0.070)	0.005	(0.015)	0.005	(0.015)	0.005	(0.015)
2	13L	III	0.010	(0.030)	0.007	(0.010)	0.007	(0.010)	0.007	(0.010)
3	15L	II	0.008	(0.020)	0.005	(0.010)	0.005	(0.010)	0.005	(0.010)
3	15R	II	*	*	0.003	(0.010)	0.003	(0.010)	0.003	(0.010)
4	22L	III	0.030	(0.070)	0.020	(0.050)	0.020	(0.050)	0.020	(0.050)
5	23LR	III	0.500	(1.240)	0.309	(0.770)	0.309	(0.770)	0.309	(0.770)
6	40L	III	0.100	(0.250)	0.020	(0.050)	0.020	(0.050)	0.020	(0.050)
8	93L	II	0.090	(0.220)	0.192	(0.470)	0.192	(0.470)	0.192	(0.470)
9	230L	II	Shane Creek		0.019	(0.050)	0.019	(0.050)	0.019	(0.050)
10	247L	I	0.210	(0.520)	–	–	0.036	(0.080)	–	–
13	249R	I	1.400	(3.360)	0.940	(2.320)	–	–	–	–
16	252L	III	0.340	(0.840)	–	–	0.091	(0.022)	–	–
17	253R	III	1.060	(2.620)	–	–	0.056	(0.140)	–	–
18	254L	II	0.030	(0.070)	–	–	0.016	(0.040)	–	–
20	269R	II	0.560	(1.400)	0.035	(0.090)	0.070	(0.180)	0.048	(0.120)
20	269L	II	*	*	0.100	(0.250)	0.029	(0.070)	0.120	(0.300)
21	270R	II	0.350	(0.860)	0.151	(0.370)	0.151	(0.370)	0.151	(0.370)
	Total		**4.700**	**(11.600)**	**1.806**	**(4.463)**	**1.029**	**(2.543)**	**0.899**	**(2.221)**

Source: MSE-HKM, April 2000; BRW, Inc., "Biological Resources Report," 1999.

– No impact

* Size for wetland BRR numbers 15 L / R and 269 L / R were combined to total one area. Wetland impacts for these areas are calculated separately for the left (L) and right (R) sides of the alternative alignments.

** Due to rounding, numbers in columns may not total exactly.

alignment. Due to the safety concerns with such a serpentine design, shifting the alignment to completely avoid wetland impacts is not considered reasonable; thus, impacts to some wetlands are unavoidable.

Steepening the side slopes to avoid wetland impacts was also assessed. While this did not enable the proposed improvements to avoid impacts, it did reduce impacts. These minimization measures are discussed below.

Minimization. A technique for impact minimization of wetlands is steepening cut-and-fill slopes. Daylighting cut sections (keeping them within the existing right-of-way) along the proposed alignment also is a minimization method that was evaluated for the proposed project. In addition, realignment was practiced, where possible, and revegetation was also considered to minimize potential wetland impacts.

Fills would be limited to the greatest extent possible in order to minimize the loss of habitat and the displacement of the individual animals occupying that habitat.

Three specific wetland sites (8, 9, and 20) would have impacts minimized by utilizing a 2:1 fill slope along the highway alignment where the alignment is adjacent to or crossing wetlands. Wetland 21 impacts would be minimized using a 4:1 fill slope. Impacts to wetland 6 would be minimized by incorporating a modified ditch section. With this modified section at wetland 6, there would be no additional impacts associated with the climbing lane south of Absarokee.

There are six wetland areas (1, 2, 3, 4, 17, and 18) where impacts could not be minimized or avoided. A standard 6:1 fill slope would be utilized in these areas. There are two wetland sites (10, 16) which could not be avoided or minimized because they are in cut sections. A portion of wetland 6 is in a cut section and therefore could not be avoided. At wetland 5, where the largest wetland impact under the Preferred Alternative B1 would occur, the horizontal position of the alignment would be avoiding impacts to the Rosebud Creek floodplain. Therefore, impacts to wetland 5 could not be minimized or avoided. In this section, a combination of 6:1 fill slopes and shallow ditch sections would be used to maintain drainage.

Where impacts could not be minimized, situations existed that justified designs that are proposed. In a few cases wetlands were on both sides of the right-of-way, and any change in alignment would increase impacts. In some situations residences or ditch impacts were being avoided by maintaining the proposed alignment. Channel changes were necessary in some areas in order to flatten existing curves deemed unsafe. All new improvements proposed would bring the roadway up to current design standards in order to meet the project purpose, which is discussed on Chapter 1. See Appendix F for the information regarding the 404 permit.

Mitigation. Wetland compensatory replacement for this proposed project would be provided through the use of wetlands constructed at the MDT/Stillwater County Stillwater River Wetland Mitigation Site south of the town of Columbus. This site is west of the study area along the southeast bank of the Stillwater River in lots 5 and 6 (T 3S, R 19E, Section 22, west of RP/MP 37.7±). This wetland mitigation site was completed in late 1998 as a wetland partnership among MDT, Columbus, and Stillwater County. Approximately 16 percent (0.45 ha / 1.12 ac) of the completed mitigation site has been assigned to the Columbus Airport Project wetland impacts. The remaining approximately 84 percent (2.38ha / 5.88 ac) is available for MDT project impacts. This wetland mitigation site, which is protected by easement and is monitored, has been initially rated as category II (post construction) with excellent potential to develop fully as category I. There are sufficient compensatory wetlands available at this site to easily accommodate replacement for the proposed P-78 project wetland impacts.

The functions and values provided at the Stillwater County mitigation site would include flood attenuation and storage, sediment/nutrient/toxicant removal, and would provide excellent habitat and cover for waterfowl and other wildlife. The loss of wetland functions and values under Alignment Alternatives A, B, and D for both cross section alternatives would be replaced by creating a Category II wetland with excellent potential to develop fully as a Category I wetland at the Stillwater County mitigation site.

Only Practicable Alternative Finding

Information included in this section under avoidance and minimization detail why there are no practicable alternatives to the proposed action, as required by Executive Order 11990. Although impacts to some wetlands are unavoidable, minimization measures have reduced impacts to several wetlands as detailed in the minimization section. Based on the considerations detailed in the above sub-sections, it is determined that there is no practicable alternatives to the proposed construction in wetlands and the Preferred Alternative includes all practicable measures to minimize harm to wetlands which may result from such use.

4.11 WATERBODY MODIFICATIONS AND WILDLIFE IMPACTS

No-Build Alternative

No impacts to water resources, vegetation, wildlife habitat, or fisheries would occur under the No-Build Alternative.

Build Alternatives — 9.6 m (32 ft) Cross Section

The following impact assessment applies to Alignment Alternatives A, B, and D. (See Appendix F for details.)

Water Resources. As discussed in Chapter 3, six drainage areas within the study area are traversed by the proposed project. Under Alignment Alternatives A, B, and D, channel modifications would be required at Butcher, Beaver, and Whitebird Creeks. Modifications to Butcher Creek would involve minor channel shaping and realignment to accommodate the flow from Rosebud Creek, which functions as an irrigation system in that area. Bank reinforcement in this area would also be required. Modifications to Beaver Creek would involve a stream channel change and to Whitebird Creek a minor channel realignment.

Wildlife Resources. The proposed project would have minimal impacts on terrestrial resources. Impacts would be limited to areas immediately adjacent to P-78, where a new right-of-way would be required. The vegetation and habitat impacts in this area represent a minor percentage of comparable plant communities found within the study area. Wildlife populations would benefit to some degree from work completion in that improved sight distances would better enable motorists to avoid animals on the highway.

The construction of long continuous segments of guardrail may negatively effect wildlife crossing the highway. Roads themselves act as barriers to wildlife, causing habitat fragmentation and isolation of populations. Deer, which occur in the study area, are accustomed to roadways and guardrails and will not be deterred by these manmade linear features.

Guardrails are proposed in 21 general locations along the corridor. Of these locations, six would be provided on both sides of the road, and the rest would be unilaterally situated either on the west or on the east side of the alignment. Segments of guardrail along the corridor range from 8 to 468 meters (26 to 1,535 feet) in length. Some of these shorter lengths are at bridge ends. Longer guardrail sections are utilized either to minimize impacts to wetlands or to provide protection in areas that lack a sufficient clear zone. Clear zone may be lacking due to steep slopes (steeper than a 3:1 grade) or due to objects or structures found in the clear zone.** No impacts associated with habitat fragmentation from guardrails are anticipated.

Maintenance activities such as snowplowing could have short-term impacts on wildlife. For example, high snow banks from plowing could result in temporary habitat fragmentation for deer. However, these impacts would not be any worse than impacts that currently occur.

Aquatic Resources. The "Biological Resource Report" identifies three creeks within the study area that support a small, but diverse population of fish species — Butcher, Joe Hill and Beaver Creeks. Intermittent flow in these streams severely limits their fishery resource potential. Both the East Rosebud Creek and the Stillwater River also sustain viable and diverse fish populations. Neither, however, would be impacted by Alignment Alternative A, B or D. According to the "Biological Resource Report," MFWP had minor concerns about fisheries related to the proposed project. These concerns would be dealt with through the Stream Protection Act process.

** Clear zone: an unencumbered designated distance from the travel lane that provides space for the recovery of vehicles leaving a roadway out of control; clear zones are site specific and are determined based upon roadway geometry, traffic volume, and speed.

Build Alternatives — 10.8 m (36 ft) Cross Section

Impacts to waterbodies and wildlife would be the same as discussed for the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation

Channel length and aquatic habitat features in the modified channels would simulate the original natural channel lengths and habitat features as much as possible. Disturbed stream banks would be revegetated to reduce erosion and best management practices would be used to minimize siltation into all drainage areas. The USFWS and MFWP would be consulted as appropriate if other issues arise.

To protect raptors, any power lines that were modified or reconstructed as a result of the project would be raptor-protected in accordance with the criteria and techniques outlined in the Raptor Research Report No. 4, "Suggested Practices for Raptor Protection on Power Lines — The State of the Art 1981."

4.12 THREATENED AND ENDANGERED SPECIES IMPACTS

No-Build Alternative

No impacts to threatened and endangered species would occur.

Build Alternatives — 9.6 m (32 ft) Cross Section

The bald eagle (threatened), black-footed ferret (endangered), and the peregrine falcon (delisted, but currently monitored) are listed by the U.S. Fish and Wildlife Service as potentially occurring in the project area. However, information provided by the Fish and Wildlife Service in the "Biological Resource Report" states that no substantive issues concerning listed or other protected species are expected with regard to the proposed project. Furthermore, informal consultation with MFWP non-game biologists concerning bald eagles and peregrine falcons, as documented in the "Biological Resource Report," revealed no direct concerns due to the distance of the nesting birds from the proposed reconstruction project. In the case of the bald eagle, a viable nest is located approximately 3.2 km (2.0 mi) west of Columbus along the Yellowstone River, which is considered to be outside of the bald eagle nesting territory. Based on the information provided by the appropriate regulatory agencies, field surveys of the area, and the location of the work proposed, the proposed action may affect, not likely to adversely affect the bald eagle and would not jeopardize the peregrine falcon.

Although it was once thought that the black-footed ferret occupied Stillwater County, there are no documented observations of the species in the county. There are no known occurrences of the black-footed ferret within the project area, and it is therefore determined that the project may affect, not likely to adversely affect the black-footed ferret.

Build Alternatives — 10.8 m (36 ft) Cross Section

Impacts to threatened and endangered species would be the same as those discussed for the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation

According to the "Biological Resource Report," the bald eagle does not nest in the study area. The bald eagle may however use the area for migrating and foraging. As such, the proposed project is not expected to impact the bald eagle. If, however, power lines in the project area were not properly constructed, they could pose electrocution hazards for migrating bald eagles. To protect these large raptors, any power lines that were modified or reconstructed as a result of the project would be raptor-proofed in accordance with the criteria and techniques outlined in the Raptor Research Report No. 4, "Suggested Practices for Raptor Protection on Power lines – the State of the Art in 1981." The USFWS and MFWP would be consulted as appropriate if other issues arise.

4.13 FLOODPLAIN IMPACTS

In accordance with Executive Order 11988 ("Floodplain Management"), FHWA requires the evaluation of the proposed project to determine if any of its alternatives encroach on the "base" floodplain (23 CFR 650, Subpart A). The "base" floodplain is defined as the area covered by water from a 100-year flood (a flood event that has a one percent chance on any day, or a probability of occurring once every 100 years).

The study area encompasses numerous drainage and irrigation features. As mentioned in Chapter 3, the Federal Emergency Management Agency (FEMA) has delineated approximate 100-year floodplain boundaries for Rosebud Creek, East Rosebud Creek, Butcher Creek, Beaver Creek, Whitebird Creek, Shane Creek, the Stillwater River, and the Yellowstone River.

No-Build Alternative

Under the No-Build Alternative, transverse encroachments to the "base" floodplains associated with Butcher Creek, Beaver Creek, Whitebird Creek, and Shane Creek would remain. Seasonal ice jams and associated flooding at Nellie's Corner are expected to continue.

Build Alternatives — 9.6 m (32 ft) Cross Section

A total of five "base" floodplains would be affected by transverse encroachments under any of the alternative alignments — Butcher Creek, Beaver Creek, Whitebird Creek, Shane Creek and the Yellowstone River. Four of these floodplain encroachments are at existing creek crossings and are unavoidable along or near the existing alignment. The other floodplain encroachment would be at the Yellowstone River and would result from a shift in the proposed alignment or from the increased roadway width. Encroachments would be the same for Alignment Alternatives A, B, and D.

> *Butcher Creek* — The Butcher Creek designated floodplain is transversely encroached at RP 30.1±. This area is impacted by the existing alignment, and an impact from this project would be unavoidable.
>
> *Beaver Creek* — The Beaver Creek designated floodplain would be transversely encroached at RP 34.8± by the proposed project because horizontal and vertical alignments would be made to flatten the existing horizontal curve. This area is impacted by the existing alignment, and an impact from this project would be unavoidable.
>
> *Whitebird Creek* — The Whitebird Creek designated floodplain is transversely encroached at RP 39.4±. This area is impacted by the existing alignment, and an impact from this project would be unavoidable.
>
> *Shane Creek* — The Shane Creek designated floodplain is transversely encroached at RP 43.5±. This area is impacted by the existing alignment, and an impact from this project would be unavoidable.

Yellowstone River — The Yellowstone River designated floodplain would be transversely encroached by the proposed project at approximately RP 46±. The horizontal and vertical alignment in this area would be shifted to the south, thus avoiding the current contiguous relationship with this designated floodplain. An encroachment would remain where the alignment turned northeast toward the south end of the Yellowstone River bridge.

As previously mentioned in Chapter 3, MSE-HKM completed a "Hydrologic and Hydraulic Study — Final Report" for this proposed project in April 1999. This report provides design recommendations for all bridges, culverts, and irrigation conveyances within the study area. In those areas where bridges would be required, including Butcher, Beaver, Whitebird, Joe Hill and Shane Creeks, the maximum allowable increase for a base flood elevation would be 0.15 m (0.5 ft) for sites covered by the National Flood Insurance Program. Table 4.10 shows the difference between existing water surface elevations and those expected after construction. Overall, the proposed project would not increase the base flood elevation at any of these sites.

The encroachment of the Yellowstone River floodplain would be due to reconstructing the roadway approach to the Yellowstone River bridge. The embankment would be in the same location and elevation as the existing embankment and would therefore not impact the Yellowstone River floodplain.

While there is no impact to the Stillwater River floodplain, the Preferred Alternative – the 9.6 m (32 ft) Cross Section under Alignment Alternative B – would also provide no improvement to the seasonal flooding associated with the ice jams. Further coordination with local property owners could be undertaken during final design.

As Table 4.10 indicates, there would be an overall reduction in base floodplain levels for Butcher, Beaver, Whitebird, Joe Hill, and Shane Creeks. Therefore the encroachments identified would not adversely impact floodplains. Furthermore, this proposed project would not promote or encourage development within the delineated floodplain, nor increase flood liability as a result of construction. This proposed project would therefore be in compliance with E.O. 11988.

Table 4.10: Anticipated Surface Water Elevations

Stream	Existing Bridge Base Floodplain Level 100-year	Recommended Bridge Base Floodplain Level 100-year	Existing and Recommended Comparison (100-year flood)
Butcher Creek	1,281.01 m (4,202.99 ft)	1,280.74 m (4202.11 ft)	-0.27 m (-0.89 ft)
Beaver Creek	1,205.65 m (3,955.74 ft)	1,205.65 m (3955.74 ft)	0.00 m (0.00 ft)
Whitebird Creek	1,162.06 m (3,812.53 ft)	1,161.22 m (3809.78 ft)	-0.84 m (-2.76 ft)
Joe Hill Creek	1,136.73 m (3,729.43 ft)	1,135.78 m (3726.31 ft)	-0.95 m (-3.12 ft)
Shane Creek	1,122.99 m (3,684.35 ft)	1,122.86 m (3683.92 ft)	-0.13 m (-0.43 ft)

Source: MSE-HKM, "Hydrologic and Hydraulic Study — Final Report," April 1999.

Build Alternatives — 10.8 m (36 ft) Cross Section

The impacts to floodplains for this alternative would be the same as those identified under the 9.6 m (32 ft) Cross Section Alternatives.

Mitigation

No mitigation is anticipated.

4.14 IMPACTS ON ARCHAEOLOGICAL AND HISTORIC RESOURCES

No-Build Alternative

The No-Build Alternative would have no effect on archaeological or historic resources within the study area.

Build Alternatives — 9.6 m (32 ft) Cross Section

Within the area of potential effect there are 13 properties and five ditches within the Lower Stillwater River Historic Irrigation District that are listed on or eligible for listing on the National Register of Historic Places. Of these properties the Lower Stillwater River Historic Irrigation District and the Half-Way Ranch were the only sites with impacts identified as having an adverse effect.

Table 4.11 shows the NRHP-eligible ditches of the Lower Stillwater River Historic Irrigation District that are impacted and describes the impact by alternative.

Table 4.11: Impacts to NRHP-Eligible Ditches for the 9.6 m (32 ft) Cross Section Alternatives

	No Build	Alternative A1	Alternative B1	Alternative D1
Lower Stillwater River Historic Irrigation District				
Butcher Creek-Rosebud Ditch	Outside area of potential effect	Outside area of potential effect	Outside area of potential effect	Outside area of potential effect
Agency Ditch	Outside area of potential effect	Outside area of potential effect	Outside area of potential effect	Outside area of potential effect
Kem-Mulherin Ditch	No impact	Relocation of 581 m (1,906 ft); 1 crossing	Relocation of 581 m (1,906 ft); 1 crossing	Relocation of 581 m (1,906 ft); 1 crossing
Roadhouse Ditch	No impact	Relocation of 3,109 m (10,200 ft); 6 crossings	Relocations of 3,109 m (10,200 ft); 6 crossings	Relocation of 3,109 m (10,200 ft); 6 crossings
Scott Ditch	No impact	Relocations of 1,770 m (5,807 ft); 1 crossing	Relocation of 1,770 m (5,807 ft); 1 crossing	Relocation of 1,770 m (5,807 ft); 1 crossing
Shane Ditch	No impact	Relocations of 393 m (1,289 ft); 1 crossing	Relocation of 393 m (1,289 ft); 1 crossing	Relocation of 150 m (492 ft); 5 crossings
White Ditch	No impact	No impact	2 crossings	No impact
Total	**None**	**Relocation of 5,853 m (19,202 ft); 9 crossings**	**Relocation of 5,853 m (19,202 ft); 11 crossings**	**Relocation of 5,610 m (18,405 ft); 13 crossings**

Source: MSE-HKM, April 2000; MDT April 2000.

Of the three alternatives, Alternatives A1 and B1 would result in fewer historic irrigation ditch crossings (9 for Alternative A1 and 11 for Alternative B1) than Alternative D1 (13 crossings); however, Alternative D1 would reduce the length of the ditch relocations by 243 m (797 ft), compared to Alternatives A1 and B1. These impacts to the Lower Stillwater River Historic Irrigation District would be considered an adverse effect. The 1989 "Memorandum of Agreement" signed by MDT, FHWA, and SHPO, that is still in effect, stipulates the mitigation techniques for these sites eligible for the National Register of Historic Places.

The proposed project's impacts to the Half-Way Ranch (24ST166) was determined to be an adverse effect to the site. Impacts would be the same for Alignment Alternatives A, B, and D under the 9.6 m (32 ft) Cross Section Alternatives. With the realignment of P-78, the centerline would shift to the west and encroach onto the eastern boundary of the Half-Way Ranch site. The realignment would impact the historic residence and two historic outbuildings, resulting in the need for 1,384 sq m (14,897 sq ft) of new right-of-way from the ranch. The drainage/field ditch, some of the cottonwood trees, and two nonhistoric structures (the playhouse and tree house) would also be impacted. The residence and outbuildings would be relocated on the site (see Figure 8.11).

Other NRHP-eligible sites evaluated for impacts include the 10 properties identified in Absarokee, the Riverside Inn (24ST164), and the Petosa Homestead/Bare Ranch (24ST171), which is also referred to as the cobblestone house.

Highway reconstruction activities would have no effect on the 10 sites in Absarokee that are recommended as eligible for the National Register of Historic Places (24ST76, 24ST176, 24ST178, 24ST181, 24ST183, 24ST184, 24ST185, 24ST187, 24ST190 and 24ST199). These activities include the reconstruction of Woodard Avenue and the installation or improvement of sidewalks within the existing highway right-of-way. Four of the eligible sites are set back from the existing highway right-of-way (24ST76, 24ST176, 24ST185 and 24ST199). The remaining six historic resources consist of buildings situated at the edge of the existing sidewalks. As improvements would not be made beyond the existing back of sidewalks (side farthest from the street), the project would have no effect (see SHPO letter dated July 23, 1999, in Appendix C). The impact would be the same for Alignment Alternatives A, B, and D.

At the Riverside Inn site (24ST164), highway reconstruction activities for Alignment Alternatives A, B, and D would require the acquisition of 729 sq m (7,844 sq ft) of right-of-way along P-78 plus 1,665 sq m (17,922 sq ft) for a construction permit for the relocation of irrigation structures and the approach road to the property. No buildings on this site would be impacted by any alternative. The SHPO determined a no effect for this site in their letter dated July 23, 1999 (see Appendix C).

At the Petosa Homestead/Bare Ranch (24ST171), the realignment proposed under Alignment Alternatives A and D would be farther from the cobblestone house than the existing roadway. Although Alternative B (the Preferred Alternative) would be closer than the existing roadway, the cobblestone house would be 72 m (236 ft) from the right-of-way. Therefore, on August 14, 2000, the SHPO determined there would be no effect on the Petosa Homestead/Bare Ranch (see letter dated July 18, 2000, in Appendix C).

A Native American consultation with the Crow by Ethnoscience, Inc., in June 1999 determined that the Shane Ridge area is a culturally sensitive and is possibly considered a traditional cultural property, which would be impacted by Alignment Alternative D. The Crow verified that either Alignment Alternative A or B would be acceptable.

Alternative B1 (the Preferred Alternative) would have no effect on the Riverside Inn and no effect on the historic properties in Absarokee, and the existing "Memorandum of Agreement" for the historic ditches would remain adequate per MDT's determination. The SHPO concurred with MDT's determination on July 23, 1999 (see copy of MDT's letter of July 22, 1999 and the SHPO's letter of July 23, 1999 in Appendix C).

Impacts to the historic properties must also be evaluated under Section 4(f) of the U.S. Department of Transportation Act of 1966 (40 U.S. C. 1653, now 49 U.S.C. 303). A detailed Section 4(f) evaluation is prepared when a transportation project has the potential to use land from specific types of sites, such as historic sites. The Riverside Inn, the Lower Stillwater River Historic Irrigation District, and the Half-Way Ranch meet the definition of a Section 4 (f) property. Refer to Part II for a detailed Section 4(f) evaluation of these sites. The historic properties in Absarokee and the Petosa Homestead/Bare Ranch would not be impacted; therefore, no further consideration under Section 4(f) is necessary.

Build Alternatives — 10.8 m (36 ft) Cross Section

Impacts for this alternative would be similar to those described for the 9.6 m (32 ft) Cross Section Alternatives except that impacts to ditches would increase, as indicated in Table 4.12. Alternative A2 would require relocating 6,216 m (20,393 ft) of the historic irrigation ditches, compared to 5,853 m (19,202 ft) for Alternative A1; Alternative B2 would require relocating 6,123 m (20,088 ft), compared to 5,853 m (19202 ft) for Alternative B1; and Alternative D2 would relocate 5,880 m (19,291 ft) of ditches, compared to 5,610 (18,405 ft) for Alternative D1. The ditch crossing replacements under this alternative would be the same as for the corresponding alignment alternatives for the 9.6 m (32 ft) cross section.

Of the three alternatives, Alternative D2 would have the most crossing replacements, but the shortest relocation; Alternative A2 would have the longest relocation; and Alternative B2 impacts would fall in-between A2 and D2.

Impacts to the Lower Stillwater River Historic Irrigation District would be considered an adverse effect. The 1989 "Memorandum of Agreement" between MDT, FHWA and SHPO that stipulates the mitigation techniques utilized for the project, concerning these NRHP eligible sites.

Impacts to the Half-Way Ranch would be adverse and similar to those discussed for the 9.6 m (32 ft) Cross Section Alternatives because the right-of-way would be the same for both cross sections.

The 10 sites in Absarokee would not be impacted as is described under the 9.6 m (32 ft) Cross Section Alternatives because the road width would not be altered within the town of Absarokee.

For the Riverside Inn impacts would be similar to the impacts for the 9.6 m (32 ft) Cross Section Alternatives because construction limits would be similar.

Impacts to the Petosa Homestead/Bare Ranch would be the same as those discussed for the 9.6 m (32 ft) Cross Section Alternatives.

The Shane Ridge area, which was indicated as culturally sensitive to the Crow, would only be impacted by Alignment Alternative D, as described under the 9.6 m (32 ft) Cross Section Alternatives.

Table 4.12: Impacts to the Lower Stillwater River Historic Irrigation District for the 10.8 m (36 ft) Cross Section Alternatives

	No Build	Alternative A2	Alternative B2	Alternative D2
Butcher Creek-Rosebud Ditch	Outside area of potential effect	Outside area of potential effect	Outside area of potential effect	Outside area of potential effect
Agency Ditch	Outside area of potential effect	Outside area of potential effect	Outside area of potential effect	Outside area of potential effect
Kem-Mulherin Ditch	No impact	Relocation of 771m (2,529 ft); 1 crossing	Relocations of 771m (2,529 ft); 1 crossing	Relocation of 771m (2,529 ft); 1 crossing
Roadhouse Ditch	No impact	Relocation of 3,134 m (10,282 ft); 6 crossings	Relocation of 3,134 m (10,282 ft); 6 crossings	Relocation of 3,134 m (10,282 ft); 6 crossings
Scott Ditch	No impact	Relocation of 1825 m (5,987 ft); 1 crossing	Relocation of 1825 m (5,987 ft); 1 crossing	Relocations of 1,825 m (5,987 ft); 1 crossing
Shane Ditch	No impact	Relocation of 393m (1,289ft); 1 crossing	Relocation of 393m (1,289ft); 1 crossing	Relocation of 150 m (492ft); 5 crossings
White Ditch	No impact	Relocations of 93 m (305 ft); no crossings	2 crossings	No impact
Total	None	**Relocation of 6,216 m (20,393 ft); 9 crossings**	**Relocation of 6,123 m (20,088 ft); 11 crossings**	**Relocation of 5,880 m (19,291 ft); 13 crossings**

Source: MSE-HKM, April 2000.

As with the 9.6 m (32 ft) Cross Section Alternatives, the Riverside Inn, the Lower Stillwater River Historic Irrigation District, and the Half-Way Ranch are defined as Section 4(f) properties (see Part II).

Mitigation

The overall impacts to ditches would result from relocation and crossing replacements, and any adverse effects would be mitigated in accordance with the 1989 "Memorandum of Agreement" between FHWA, MDT, and SHPO. Mitigation measures agreed upon include (1) perpetuating the historic irrigation ditches by relocating them immediately outside the new highway right-of-way; (2) keeping a record of the existing and new locations of the ditches on project plans, which would be stored by MDT and made available to researchers; and (3) preparing a researchers' guide to historic irrigation systems in Montana. The researchers' guide has been completed and is included in Appendix C. The "Memorandum of Agreement" would aid in mitigating adverse impacts to ditches under Alignment Alternatives A, B, and D. Alignment Alternatives A and B would avoid impacts to Shane Ridge areas, which are considered culturally sensitive by the Crow.

Measures to mitigate impacts at the Half-Way Ranch site would include steepening fill slopes within the site boundary and reducing the right-of-way width. These measures would result in an overall reduction of 546 sq m (5,877 sq ft) of right-of-way on site. If feasible, the historic structures would be relocated on site. Coordination has been undertaken among FHWA, MDT, the SHPO, and the property owner to implement a memorandum of agreement, that was signed on January 31, 2001, to mitigate adverse impacts at this site.

Mitigation measures of the Half-Way Ranch MOA include the following five stipulations: (1) MDT will prepare all necessary NRHP forms in consultation with the SHPO prior to letting of the construction contract, and if the site is placed on the NRHP, MDT will coordinate and cover all costs for fabricating a sign that describes the history and significance of the site; (2) if the property is not placed on the NRHP, MDT shall contact and coordinate with the Historic American Building Survey (HABS) to determine appropriate recordation procedures and ensure that all documentation is completed and is distributed to the proper entities prior to the relocation of the residence on the property; (3) MDT will relocate residence F-1, outbuilding F-2, and Garage F-3, out of the ROW and construction limits with as little alteration as possible, and this relocation will be conducted by a professional mover of historic buildings; (4) new silver maple, cottonwood, and spruce trees will be planted on the site; and (5) if a dispute arises regarding this MOA, FHWA shall consult with the objecting party to resolve the dispute and further comments shall be requested from the Advisory Council on Historic Preservation if disputes are not deemed resolvable by any consulting party.

Measures to mitigate impacts at the Riverside Inn site would include a minor horizontal alignment shift of P-78 away from the site and into the hillside to the east. This alignment shift would reduce the right-of-way impacts by half, from 1,523 sq m (16,387 sq ft) to 729 sq m (7,844 sq ft). To minimize impacts to the site from the realigned county road that would become a private driveway, the side slopes of this approach road would be reduced from 6:1 to 2:1.

4.15 HAZARDOUS WASTE SITE IMPACTS

No-Build Alternative

The No-Build Alternative would not impact hazardous waste sites in the project study area.

Build Alternatives — 9.6 m (32 ft) Cross Section

Potential hazardous waste sites were identified in Absarokee (as described in Chapter 3). Based on investigations and analysis pertaining to these sites, which included considering the location of these sites either hydrogeologically upgradient or downgradient of P-78, the following three properties might have potential for hydrocarbon contaminated soils along this section of the P-78 right-of-way under Alignment Alternatives A, B, and D: American Enterprises (Old Cobblestone Garage), Beartooth Trading Post (Kruger's Korner), and JC Tire (Owen's Exxon). Table 4.13 highlights each potentially contaminated site and provides a brief history for each property. There is the potential for encountering contaminated soil with the reconstruction of Woodard Avenue because these properties are adjacent to the roadway and are hydrogeologically upgradient of the road. However, as noted below, the American Enterprise site and the JC Tire site are currently being monitored.

Table 4.13: Hazardous Waste Sites Identified Along the P-78 Corridor

Site Name & Location	Hazard Status
American Enterprises, Inc. (Old Cobblestone Garage)	An active service station. An underground storage tank leakage (LUST) was documented in 1992. Underground storage tanks replaced and three new ones currently active. One may be adjacent to or under the sidewalk adjacent to Woodard Avenue: the fillport is located in the sidewalk. Per state agency interviews, the site is an open leaking underground storage tank (LUST) site and a long-term groundwater monitoring plan is in place. Located to east and hydrogeologically upgradient of P-78. Contamination may be encountered in the study area.
Beartooth Trading Post (Kruger's Korner)	One active UST at operating service station. Two underground storage tanks removed in 1994. 380 cubic yards of impacted soils were excavated during tank removal with minor impact to groundwater. Soils were land farmed. Documented open LUST site. Located to east and hydrogeologically upgradient of P-78. Potential for contamination to be encountered in the study area.
JC Tire (Owen's Exxon)	Unused pump islands in place. Former underground storage tanks believed to be removed. Monitoring wells sampled periodically. Identified as an open LUST site. Located east and hydrogeologically upgradient of P-78. There is potential for contamination to be encountered in the study area.

Source: Dames & Moore, Inc., "Environmental Hazards Study, P-78 Highway Project, Absarokee, Stillwater County, Montana," June 29, 1999.

Build Alternatives — 10.8 m (36 ft) Cross Section

Since the proposed improvements in Absarokee would be the same as the 9.6 m (32 ft) Cross Section Alternatives, the potential impacts would be the same.

Mitigation

Soils in areas of potential hazardous waste should be monitored for the presence of volatile organic vapors using a photo-ionization detector (PID), or an equivalent instrument. As noted previously, two sites along Woodard Avenue are currently being monitored. The status and monitoring results of these sites should be reviewed prior to construction to provide the most current information. It is recommended that the underground storage tanks under the American Enterprises' site be moved away from the P-78 right-of-way if curbing and sidewalk work was undertaken in that area.

Likely mitigation practices for soils potentially contaminated with hydrocarbon, if encountered, include direct disposal or an on-site application treatment (land farming). Disposal of soils potentially contaminated with hydrocarbon fuel compounds would be done in accordance with guidance and approvals obtained from the MDEQ and Stillwater County, which are decided on a case-by-case basis.

An appropriate type of disposal site for hazardous waste would be a Class II landfill. A Class II landfill is a facility specifically designed for the purpose of hazardous waste disposal.

4.16 VISUAL RESOURCE IMPACTS

No-Build Alternative

Impacts to visual resources would not occur under the No-Build Alternative.

Build Alternatives — 9.6 m (32 ft) Cross Section

The primary visual effect resulting from the proposed project would be landform modification and alteration of vegetation patterns. Where the proposed project generally follows the existing alignment, widening would increase the visual scale of the roadway. In other areas, large cut-and-fill slopes would affect the intactness and unity of the existing landscape. An existing 69kV overhead electrical transmission line is adjacent to the existing alignment. Relocating this line would reduce this feature's prominence in the foreground areas.

Key observation points (KOPs) were chosen within each landscape unit and are depicted in Figure 4.2. These points are located where the proposed project could be seen by large numbers of viewers and/or be seen for a long time. Most of this proposed project would follow the existing P-78 alignment. Therefore, the extent of change to the existing landscape would be minimal throughout much of the corridor. The key observation points are where this proposed project varies considerably from the existing alignment and visual impacts are more likely to occur. The impacts presented below are grouped by the corresponding key observation point evaluated.

- KOP 1 is near the southern terminus of the proposed project. Its view is just east of the junction of Lover's Lane and P-78. KOP 1 would be impacted by Alignment Alternatives A, B, and D and would make large cut slopes visible against the bluff along the inside curve of the alignment. The large angular surfaces of the cut slopes would create a high degree of contrast with rounded forms of the hills. In addition, the roadway would be elevated above existing grade, requiring moderate fill slopes on both sides of the proposed roadway. Highway travelers would have a short duration view; however, some homes in the area would have a long-term view. The area is not generally visible to recreational river users. Due to the prominence of the cut slope on the existing bluff, there would be moderately adverse visual impacts in this area.

- KOP 2 is just north of the proposed bridge over Whitebird Creek. KOP 2 offers views of extensive fill slopes and a new bridge that would be superimposed on an expansive mountain view (see Figure 4.2). Alignment Alternatives A, B, and D would introduce angular forms and geometric lines, creating a high degree of contrast with the present landscape (see Figure 4.4). Several homes in the area would have long-term views of the proposed project, which would also be visible at intervals to recreational users of the Stillwater River. The creation of linear forms by extensive fill slopes would result in moderately adverse visual impacts in this area.

- KOP 3 is just south of the intersection of Countryman Creek Road, along the existing P-78 alignment. Its view is to the northeast, which shows the area encompassing Alignment Alternative D. The visual impacts of a three percent and a four percent grade were assessed for this area. Both options would result in major landform changes. The three percent and four percent options both show large angular cut slopes in the bluff that would contrast greatly with the existing rounded formations. The three percent option would have a larger cut than the four percent option. The view of the cut slope would be of short duration for highway travelers, since the larger cuts would be located on the inside edge of the alignment's curve. In addition to the cut slopes, both options would introduce large fill slopes in the fields near the bluff. These elevated linear forms would contrast greatly with the existing fields, which are uniformly flat. The fill areas would be of short duration for highway travelers, but would have long-term view impacts for several homes in the area. Both the proposed cuts and fills would be visible by recreational river users. The creation of linear forms and the contrast of new cut-and-fill slopes along this alignment would have substantial adverse visual impacts.

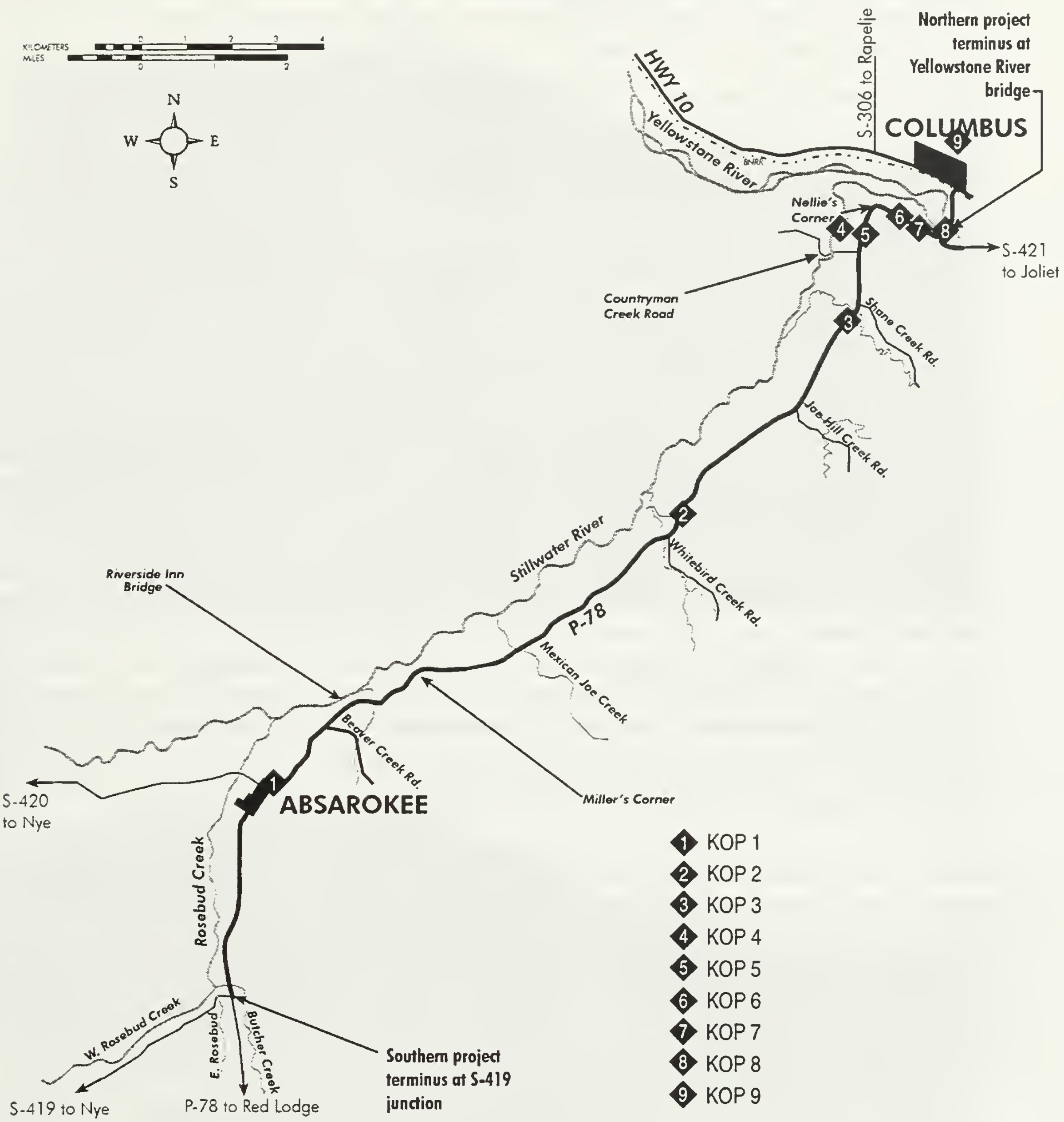
- KOP 4 is along Countryman Creek Road, approximately 144 m (475 ft) west of the existing P-78 alignment. Its view is to the northeast, which shows the area encompassing Alignment Alternative A (see Figure 4.5). The visual impacts of a three percent and a four percent grade were assessed for this area. Both options would result in major landform changes, however they would not be as severe as Alignment Alternative D as seen from KOP 3. The three and four percent options would show angular cut slopes in the bluff on the south side of the alignment (see Figure 4.6). These would contrast greatly with the existing rounded formations. The three percent option would have a larger cut than the four percent option.

  The view of the cut slope would be of short duration for highway travelers, since the larger cuts would be located on the inside edge of the alignment's curve. In addition to the cut slopes, both options would introduce substantial fill slopes in the fields as the road approaches the bluff. These elevated linear forms would contrast with the existing flat fields. The view of fill areas would be of short duration for highway travelers, but would be long term impacts for several residents in the project area. Both the proposed cuts and fills would be visible to recreational users of the river. Due to the extreme landform modifications, the area would incur substantial adverse visual impacts.

- KOP 5 is at the intersection of the existing P-78 alignment and Countryman Creek Road. Its view is to the northwest, showing the area encompassing Alignment Alternative B. Alignment Alternative B generally follows the existing grade through the fields north and west of the existing alignment. It would feature small fills across the meadow, but it would not contrast greatly with the existing landform since the fills are minimal. This proposed alignment would not be visible from the Stillwater River or from I-90. Landform modifications would be minimal in this area and would result in neutral visual impacts.

- KOP 6 is along the existing P-78 alignment, approximately 0.4 km (0.25 mi.) east of Nellie's Corner. Its view is to the northwest, showing the low fills and shallow cuts across the meadows on this alignment (see Figure 4.7). Alignment Alternative B generally follows the existing grade through fields north and west of the existing alignment. It would feature small fills across the meadow, but it would not contrast greatly with the existing landform since the fills are minimal (see Figure 4.8). The proposed alignment would not be visible from the Stillwater River or from I-90. Landform modifications would be similar to KOP 5, resulting in neutral visual impacts.

- KOP 7 is along the existing P-78 alignment, approximately 0.8 km (0.5 mi.) east of Nellie's Corner. Its view is to the southwest, showing the area encompassing Alignment Alternative A (see Figure 4.9). The visual impacts of a three percent and a four percent grade were assessed for this area. Both would result in major landform changes and would show angular cut slopes in the bluff north of the alignment's curve. These would contrast greatly with the existing rounded formations. The three percent option would have a larger cut than the four percent option. The cut slope would be of medium duration for highway travelers since the cuts would be on the outside edge of the alignment's curve. In addition to the cut slopes, both options would introduce substantial fill slopes in the fields as the alignment approached the bluff. These elevated linear forms would contrast with the existing fields. The views of fill areas would be of short duration for highway travelers, but they would be long-term impacts for residents in several homes in the project area. The majority of these fill slopes would be hidden from the view of I-90 travelers by the cottonwood trees along the Yellowstone River; however, the cut slopes would have long-term view impacts for westbound I-90 travelers, as


KILOMETERS
MILES
0
1
2
3
4
0
1
2
N
W
E
S
HWY 10
Yellowstone River
BNRR
S-306 to Rapelje
Northern project terminus at Yellowstone River bridge
COLUMBUS
Nellie's Corner
S-421 to Joliet
Countryman Creek Road
Shane Creek Rd.
Joe Hill Creek Rd.
Stillwater River
Whitebird Creek Rd.
P-78
Mexican Joe Creek
Riverside Inn Bridge
Beaver Creek Rd.
Miller's Corner
S-420 to Nye
ABSAROKEE
Rosebud Creek
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project terminus at S-419 junction
S-419 to Nye
P-78 to Red Lodge
1
2
3
4
5
6
7
8
9
KOP 1
KOP 2
KOP 3
KOP 4
KOP 5
KOP 6
KOP 7
KOP 8
KOP 9

Source: Wirth Design Associates, "Highway 78 Visual Analysis," July 1999.

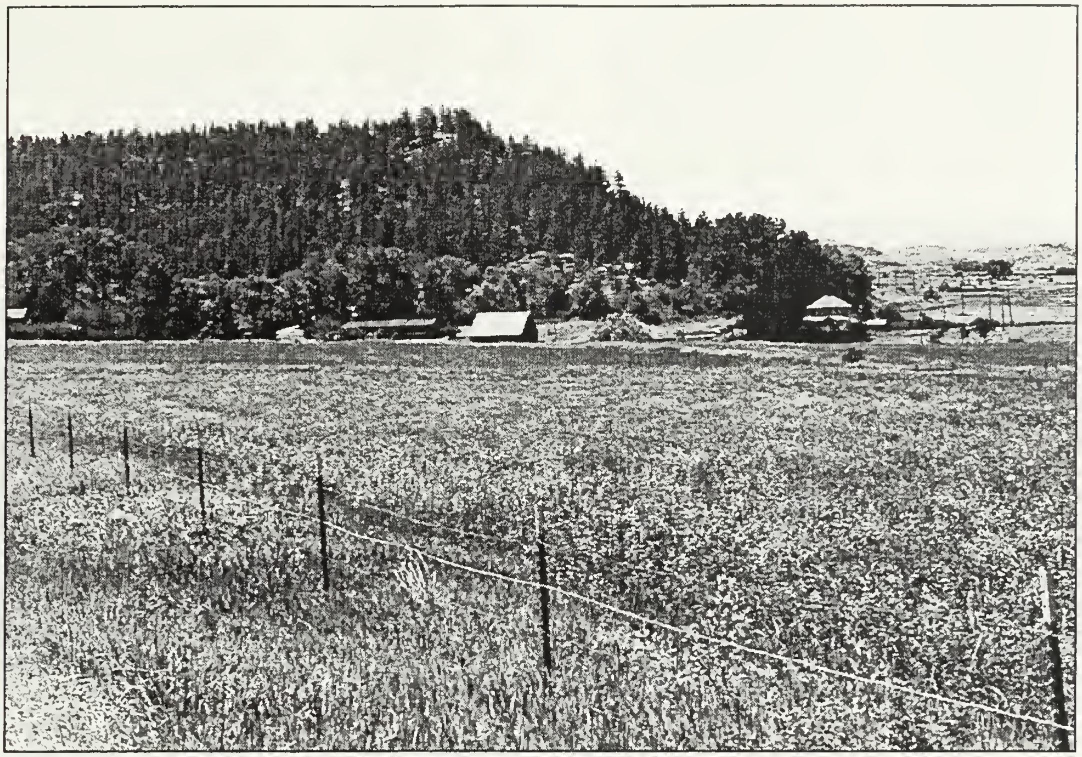
Figure 4.2: Key Observation Points

they would be visible above the treeline. Both the proposed cut and fill would be visible by recreational river users. These extreme landform modifications would result in substantial adverse visual impacts. Figure 4.10 shows a visual simulation for Alignment Alternative A under the 9.6 m (32 ft) cross section (A1) for this area.

- KOP 8 is near the intersection of Joliet Road (S-421) and the existing P-78 alignment. Its view is to the southwest, showing the area encompassing Alignment Alternative D (see Figure 4.11). This alignment has two options that would result in major landform changes. The visual impacts of a three percent and a four percent grade were assessed for this area. Both options would have large angular cut slopes along a great length of the bluff. This would contrast greatly with the existing rounded formations (see Figure 4.12). The three percent option would have a larger cut than the four percent option. The views of cut slopes would be of long duration for highway travelers since the larger cuts would be on the outside edge of the alignment's curve. In addition to the cut slopes, both options would introduce large fill slopes as the alignment approached the bluff. These elevated linear forms would contrast greatly against the heavily vegetated bluffs. Views of the fill areas would be of short duration for highway travelers, but they would be long-term impacts for residents of several homes in the project area and for I-90 travelers. Both of the proposed cuts and fills would be visible by recreational river users. The large quantity of fill in the area would have moderately adverse visual impacts; however, the fill slopes would delete the scars created in the hillside to accommodate the existing modular homes and could be partially beneficial.

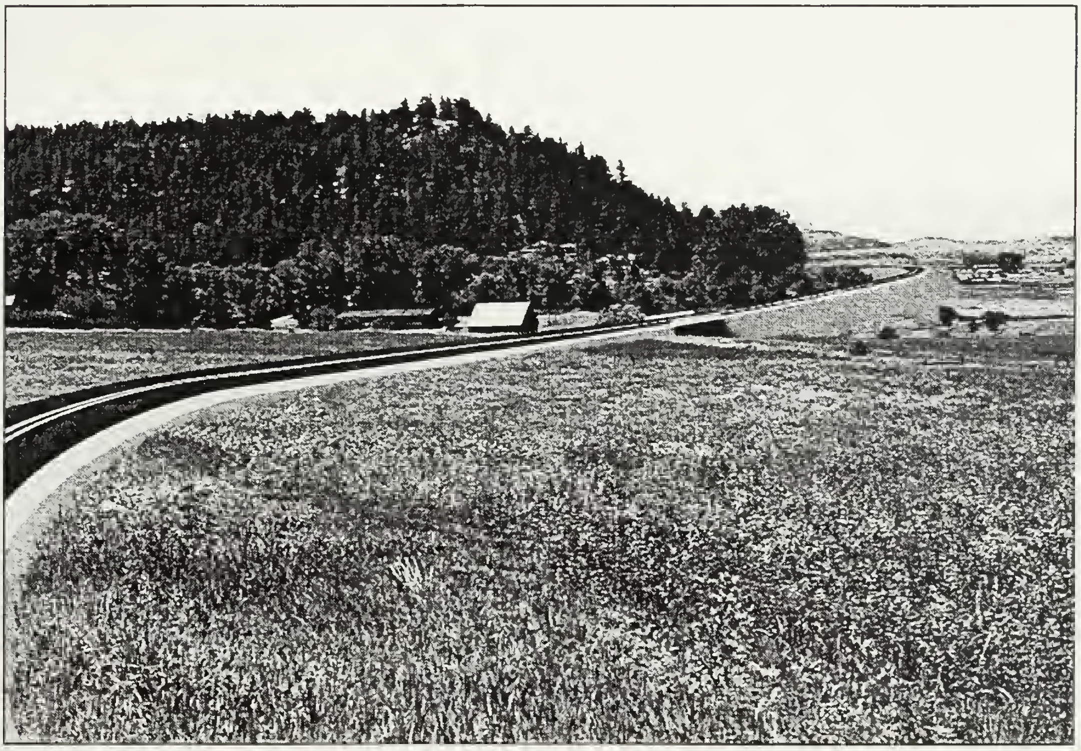
- KOP 9 is north of Columbus, on the south side of I-90 (approximately 0.8 km [0.5 mi.] east of the Columbus exit). Its views to the southwest show the area encompassing Alignment Alternative D. The three percent grade option would result in the greatest amount of cut and therefore the most visible impacts along the bluff as seen from I-90. Alignment Alternative D also has a four percent grade option, which would have slightly less cut, but it would not be noticeably different from the I-90 viewpoint. Approximately two-thirds of the alignment would be visible during the winter months. These elevated linear forms would contrast greatly against the heavily vegetated bluffs. Views of fill areas would be of short duration for highway travelers, but views of cut slopes would be long-term impacts for westbound I-90 travelers, resulting in moderately adverse visual impacts.

In summary, most of the proposed project would follow the existing P-78 alignment. Therefore, the extent of change to the existing landscape would be minimal throughout the corridor except at a few specific locations. The cut slope at KOP 1 and the fill slope at KOP 2 would have moderate visual impacts that would be the same for Alignment Alternatives A, B, and D. In the Nellie's Corner area, Alignment Alternatives A and D would have larger cut-and-fill areas than would Alignment Alternative B. The large cut-and-fill areas for Alignment Alternatives A and D would result in substantial visual impacts, whereas Alignment Alternative B would have minimal visual impacts.



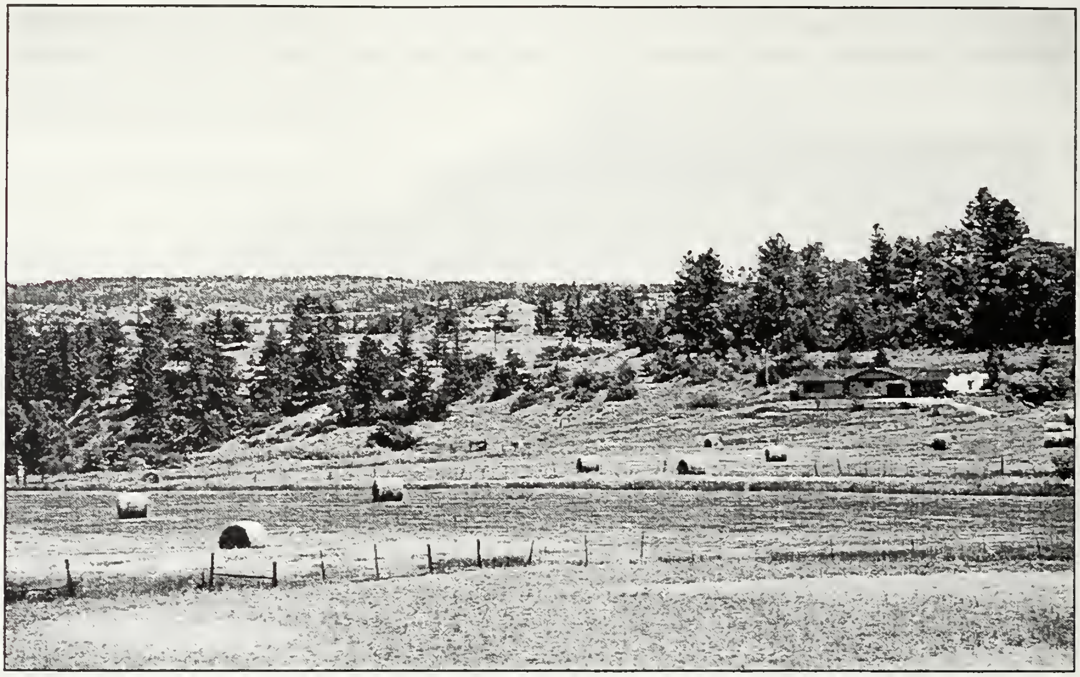
Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.3: Key Observation Point 2 — Existing Conditions



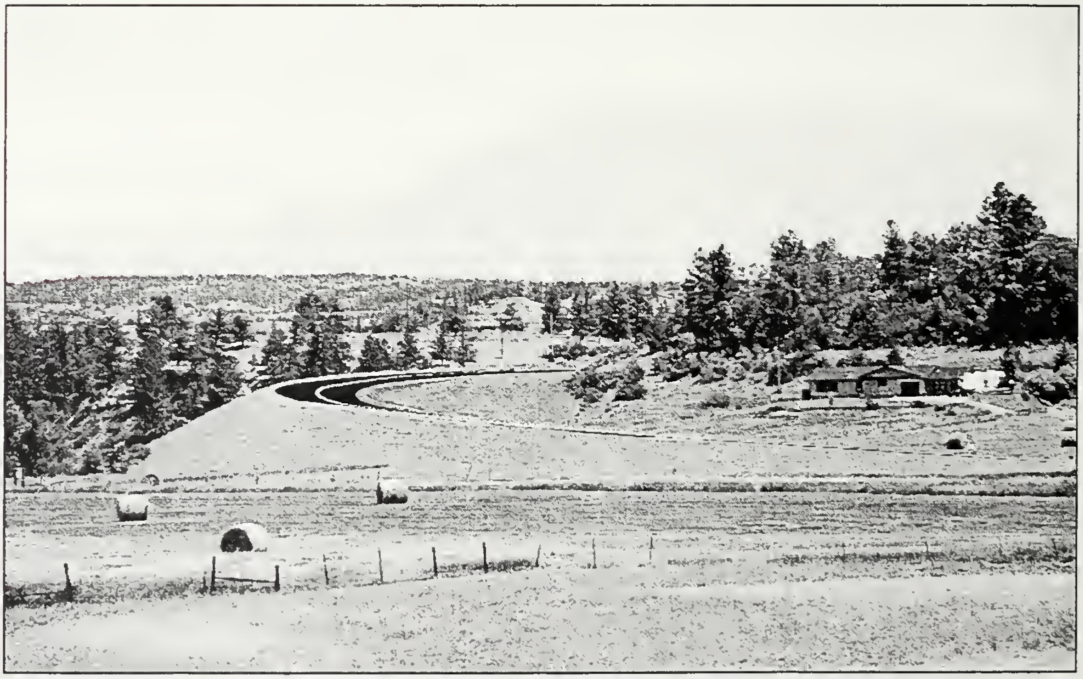
Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.4: Key Observation Point 2 — Visual Simulation (Alternatives A1, B1, and D1)



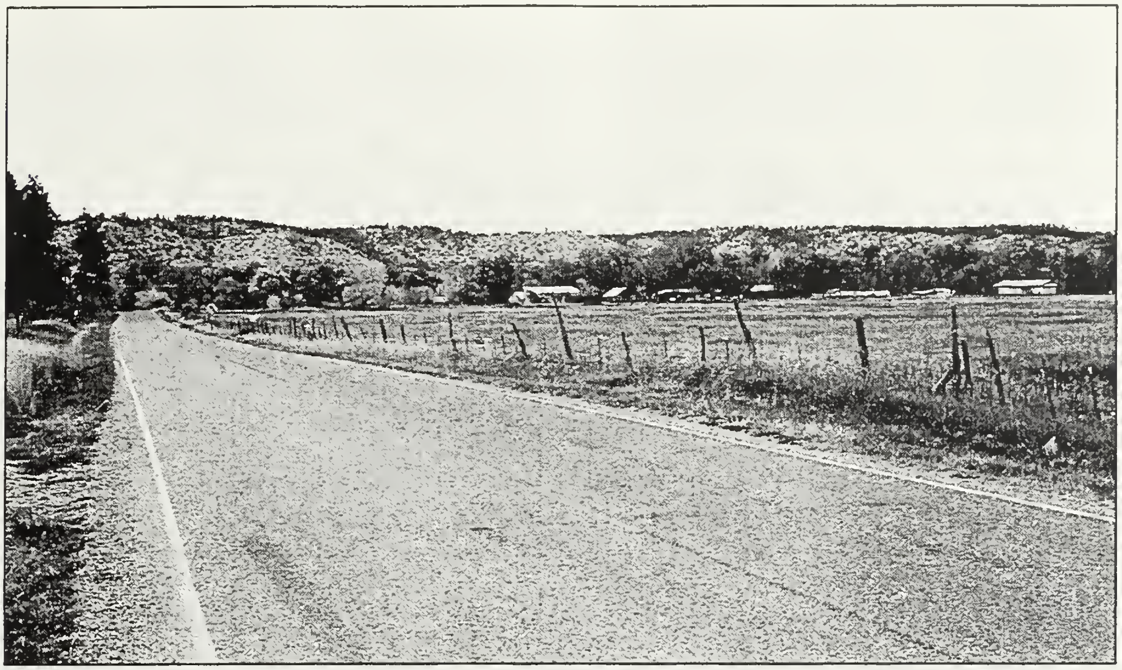
Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.5: Key Observation Point 4 — Existing Conditions



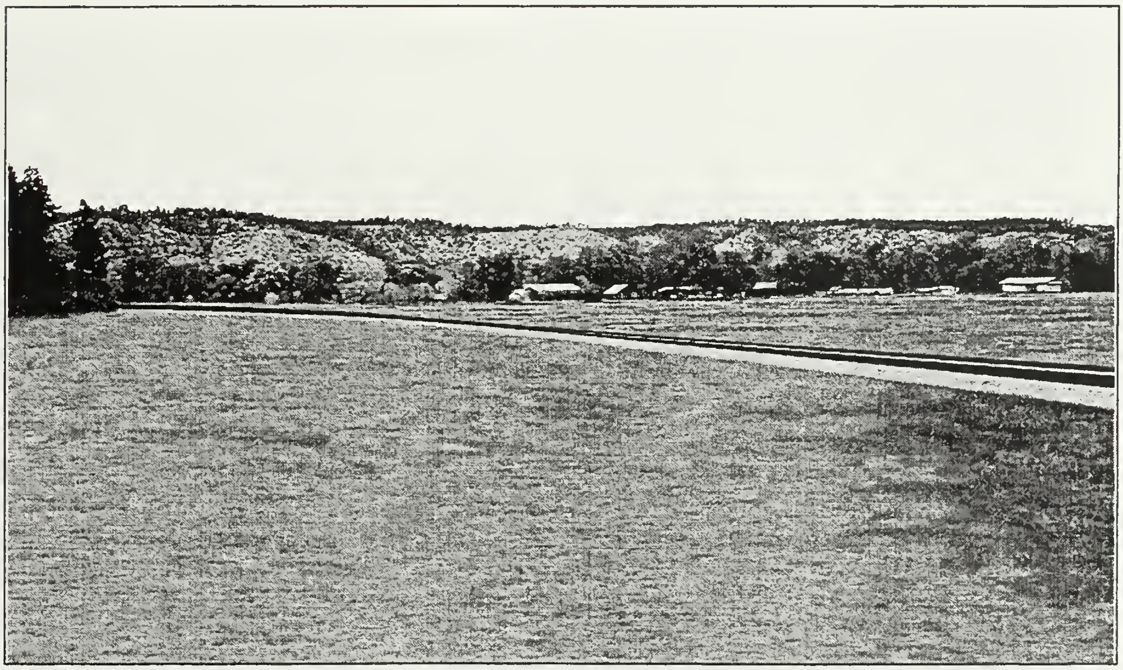
Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.6: Key Observation Point 4 — Visual Simulation (Alternative A1, Four Percent Grade)



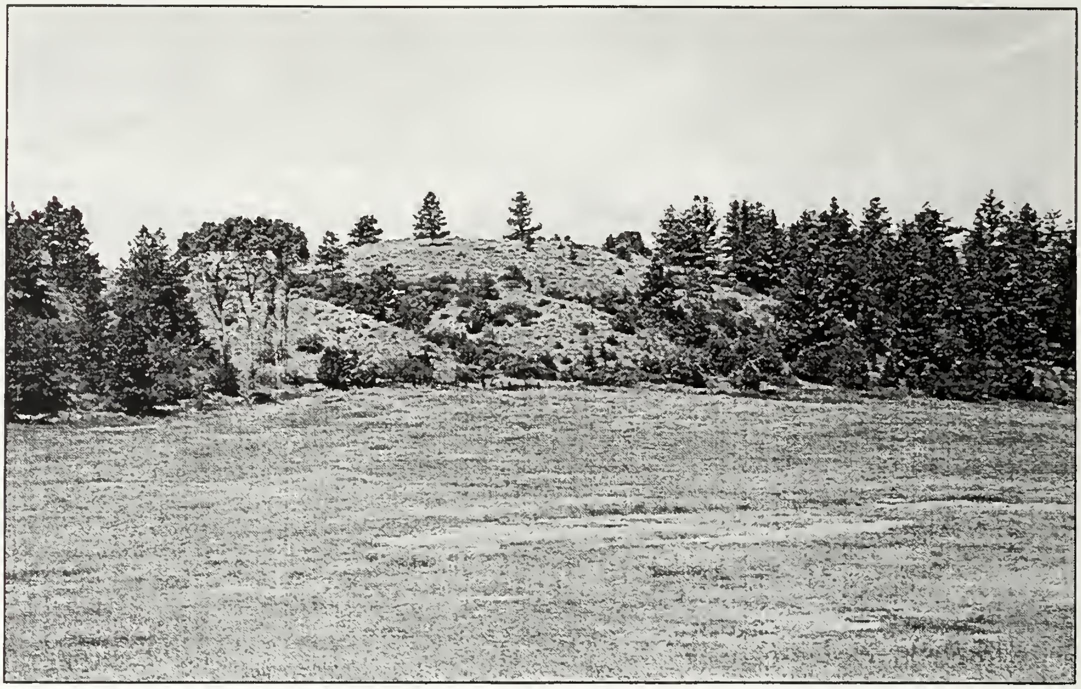
Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.7: Key Observation Point 6 — Existing Conditions



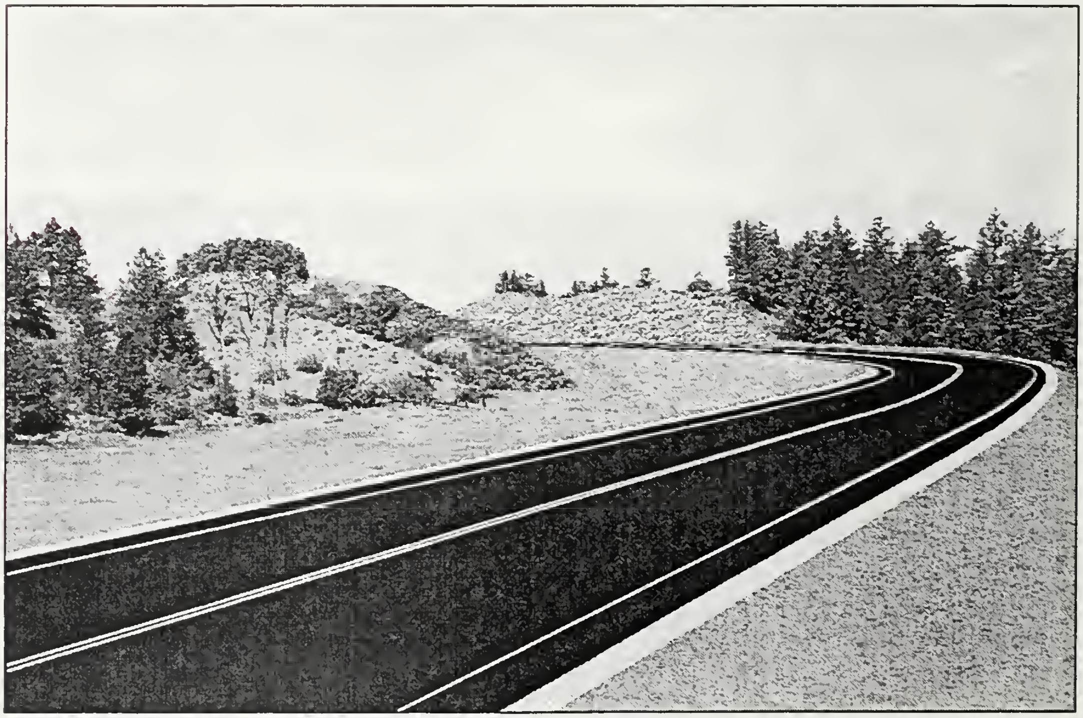
Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.8: Key Observation Point 6 — Visual Simulation (Alternative B1)



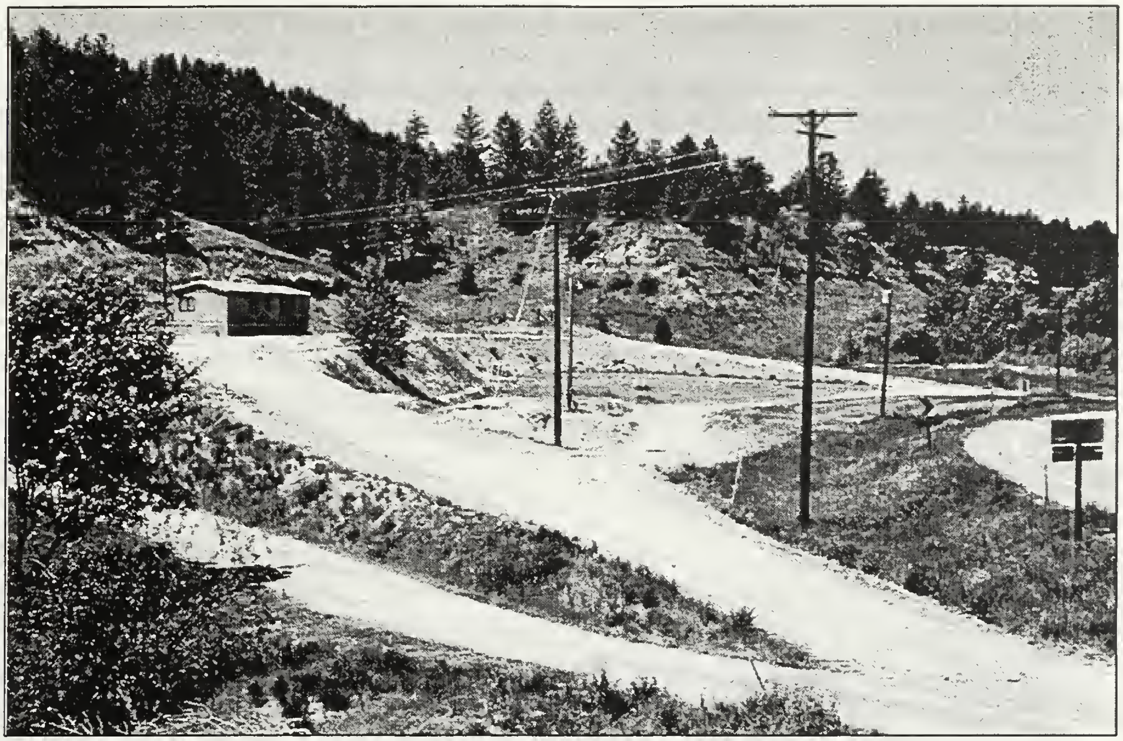
Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.9: Key Observation Point 7 — Existing Conditions



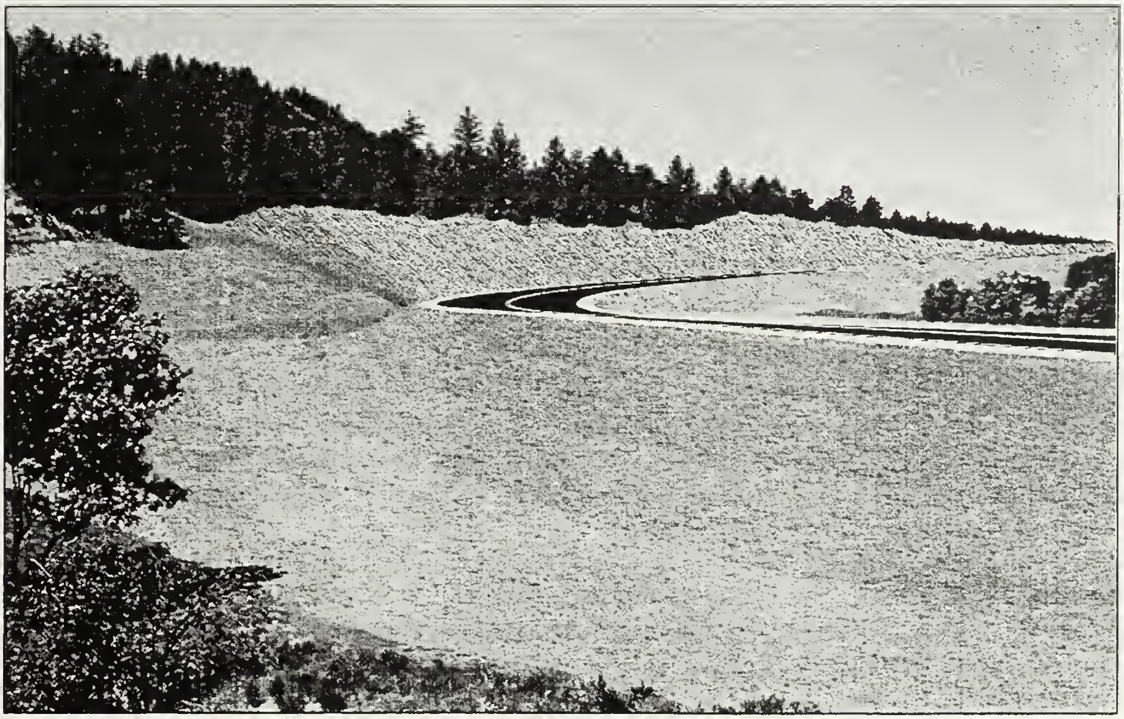
Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.10: Key Observation Point 7 — Visual Simulation for the 9.6 m (32 ft) Cross Section (Alternative A1)



Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.11: Key Observation Point 8 — Existing Conditions

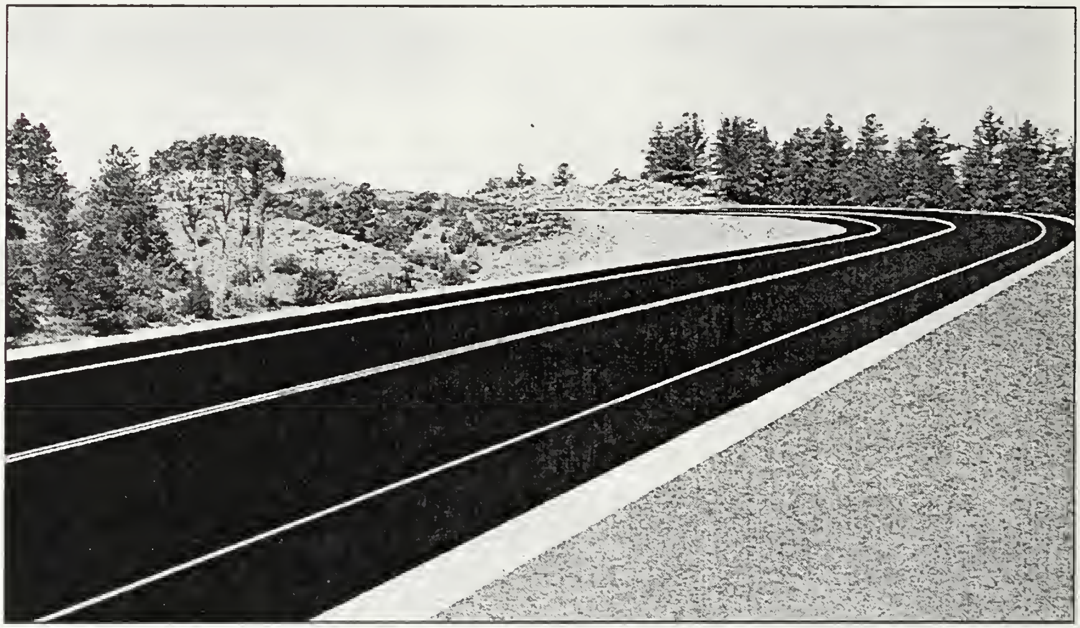


Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.12: Key Observation Point 8 — Visual Simulation (Alternative D1, Four Percent Grade)

Build Alternatives — 10.8 m (36 ft) Cross Section

The wider cross section was also evaluated for visual impacts. KOP 7 provides a close viewpoint of the bluff approached by the alignment (see Figure 4.13) for Alternative A2. It was determined that this location would show the greatest visual difference for comparing the 10.8 m (36 ft) cross section to the 9.6 m (32 ft) cross section. It was concluded by comparing Figure 4.10 for the 9.6 m (32 ft) cross section alternative to Figure 4.13 for the 10.8 m (36 ft) cross section alternative that the visual difference was minimal, and no other key observation points were assessed for visual distinction between the two cross section alternatives. Therefore, the visual impacts described for the 9.6 m (32 ft) Cross Section Alternatives would apply to the 10.8 m (36 ft) Cross Section Alternatives.



Source: Wirth Design Associates, "Highway 78 Visual Analysis," April 2000.

Figure 4.13: Key Observation Point 7 — Visual Simulation for the 10.8 m (36 ft) Cross Section (Alternative A2)

Mitigation

Techniques that would be employed if practicable to mitigate the showing of typical rock cuts, brush and tree clearing, and bridge abutments as indicated for KOPs 1, 3, 4, 7, 8 and 9 include creating natural looking rock cuts with non-linear edges that have rounded formations resembling adjacent, existing bluffs and outcroppings. Also, brush and trees would be cleared in a manner that would not create a linear woodline edge, but instead provide a random meandering edge. In addition, vegetation would be used at bridge abutments.

Other practices recommended for revegetation for KOPs 1, 2, 3, 4, 7 and 8 would include reintroducing native plant species, creating pockets in newly graded slopes for plantings, and revegetating in ways that did not result in a linear edge.

For stream areas that would be impacted, rocks of various sizes and shapes would be randomly placed along streambanks and channel bottoms. Meandering stream channels with nonlinear edges would be created when relocating stream channels. Also, native cottonwood and willow community plantings would be reintroduced along stream edges.

4.17 ENERGY IMPLICATIONS

The dominant source of energy for the transportation sector is petroleum, accounting for nearly two-thirds of the petroleum consumed in the United States. Highway travel accounts for nearly three-fourths of total transportation energy used, with about 80 percent used by automobiles, light trucks, and motorcycles and about 20 percent used by heavy trucks and buses.

Fuel consumption is a function of traffic characteristics similar to those affecting emissions. Primary characteristics include traffic flow, driver behavior, highway geometrics, vehicle fleet, and climate. Modeling by the Oak Ridge National Laboratory suggests that of all the travel-related factors affecting fuel economy and average vehicle speed explain most of the variability in fuel consumption and are a good predictor of fuel economy for most trips. Fuel efficiency under steady flow, cruise-type driving conditions peaks at speeds of 56 to 72 km/h (35 to 45 mph) and then rapidly declines at higher speeds.

No-Build Alternative

Without safety improvements, accidents along P-78 would continue to occur at a similar rate. Accidents negatively impact fuel efficiency when traffic is halted due to roadway obstructions. The No-Build Alternative represents the worst level of service for the corridor, with less steady traffic flows and increased fuel consumption.

Build Alternatives — 9.6 m (32 ft) Cross Section

By making roadway improvements, and thus improving the level of service and smoothing traffic flows as compared to the No-Build Alternative, the proposed improvements would have an effect on those fuel economy factors related to safety conditions and driver behavior. While the overall effect on energy requirement would probably not entail an appreciable benefit, it would also not cause or contribute to additional problems. The energy impacts would be the same for Alignment Alternatives A, B, and D.

Build Alternatives — 10.8 (36 ft) Cross Section

The energy impacts would be the same as the 9.6 m (32 ft) Cross Section Alternatives, because the safety improvements and level of service would be similar.

Mitigation

No mitigation is anticipated.

4.18 CONSTRUCTION IMPACTS RELATED TO THE BUILD ALTERNATIVES

There would be no construction impacts associated with the No-Build Alternative. Construction impacts for the 9.6 m (32 ft) Cross Section Alternatives and the 10.8 m (36 ft) Cross Section Alternatives would be the same and are described below.

Construction Schedule and Method

The proposed project has been divided into three segments; however, the Columbus south segment and the Absarokee north/south segment will be let out to bid as one project.

> *Columbus South Segment* — This segment is scheduled to be ready for construction in 2003 or later.
>
> *Absarokee North/South Segment* — This segment is scheduled to be ready for construction in 2003 or later.
>
> *Town of Absarokee* — The project was nominated in spring (1999) and would require approximately one year to advance through the public involvement and Transportation Commission approval process. Actual programming and the assignment of the project to a consultant would begin in 2001. Project development time would probably require two to four years. The project is planned to go to construction in 2003 or later.

Construction Impacts on Land Use and Right-of-Way

Impacts. Construction easements for grading, irrigation relocations, fencing relocations, approach road improvements, temporary access, or temporary construction staging would be needed from property owners along the corridor. While the property owners would retain ownership of these areas, their use of these areas during construction would be restricted by particular construction activities. Upon completion of the roadway project, the property owners would once again have unrestricted use of these areas again.

The Joe Hill burial is outside the construction limits; however, it is nearby and would be avoided or relocated.

Mitigation. To avoid impacting the ballfield at the high school, construction activities would be restricted to the highway right-of-way in this location. Property owners would be given early notification of construction in order to address potential construction impacts. To avoid the Joe Hill grave, it would be marked during construction.

Construction Impacts on Traffic

Impacts. During the construction period, traffic impacts would include: increased construction truck traffic and increased traffic congestion, with some traffic delays.

Mitigation. Existing bridges would remain in place during construction to limit detours and minimize disruptions to traffic flow. A traffic control plan would be developed to minimize disruptions to traffic during the construction period.

Socioeconomic Construction Impacts

Impacts. During the construction period the purchase of labor and materials would provide opportunities for additional jobs and related goods and services. These beneficial economic impacts would continue throughout the construction period.

Mitigation. No mitigation would be required.

Construction Impacts on Businesses

Impacts. While traditional access might be altered, business access would be maintained during construction. During construction in Absarokee, parking might be restricted on Woodard Avenue. Construction activities impacting agricultural businesses would include the relocation of irrigation ditches.

Mitigation. A traffic control plan would be developed to maintain business access and minimize disruption to business operations such as deliveries. Business and property owners would be given early notification of construction work in Absarokee in order to address potential construction impacts on access, parking, or operations. Irrigation ditch relocations would be undertaken in coordination with owners to minimize impacts to farming and ranching operations.

Construction Noise Impacts

Impacts. Reconstructing P-78 between Absarokee and Columbus would generate noise that could temporarily generate impacts within and outside the highway corridor. Construction noise sources include diesel-powered earth moving equipment such as dump trucks and bulldozers, back-up alarms on certain equipment, compressors, and pile drivers. These sources would be located within the highway corridor, along haul routes, and at staging areas. Another source of noise during construction would be from detoured traffic (if detours became necessary). Receptors that could be impacted by construction noise include all of the receptors identified previously for highway noise impacts, and those located along haul roads, near staging areas, and along detour routes.

Construction noise at a receptor location is usually dependent on the loudest one or two pieces of equipment operating at the moment. Noise levels from diesel-powered equipment are 80–95 dB(A) at a distance of 15m (50 ft). Impact equipment such as rock drills and pile drivers can generate louder noise levels.

Mitigation. At or near major settlements construction hours could be limited to daylight hours to avoid noise impacts at night. Contractors would adhere to local ordinances and best management practices to minimize noise impacts during construction. Advance notice of construction would be provided to area businesses and residences to minimize impacts on community activities.

Construction Impacts on Air Quality

Impacts. Air quality related to construction would be limited to short-term increases in fugitive dust and mobile source emissions. Care must be taken during construction to reduce the amounts of particulates generated.

Fugitive dust is airborne particulate matter that cannot reasonably be captured through a control device. Construction-related fugitive dust would be generated by haul trucks, concrete trucks, delivery trucks, and other earth-moving vehicles operating around the construction sites. The dust would be due primarily to particulate matter re-suspended by vehicle movement over paved and unpaved roads and other surfaces, dirt tracked onto paved surfaces from unpaved areas at access points, and material blown from uncovered haul trucks.

Generally, the distance that particles drift from their source depends on their size, emission height, and wind speed. Small particles (30 to 100 microns) can travel several hundred feet before settling to the ground, depending on wind speed. Most fugitive dust, however, is made up of relatively large particles (i.e., particles greater than 100 microns in diameter). These particles are responsible for the reduced visibility often associated with highway construction. Given their relatively large size, these particles tend to settle within 20 to 30 feet of their source.

Carbon monoxide (CO) is the principal pollutant of concern when considering localized air quality impacts of motor vehicles. Because CO emissions from motor vehicles increase with decreasing vehicle speed, disruption of traffic during construction is likely to result in short-term, elevated CO concentrations.

Mitigation. Fugitive dust and mobile source emissions would be minimized by requiring contractors to adhere to all state and local regulations and to best management practices. Some measures to reduce fugitive dust from construction might include minimizing exposed erodible earth area to the extent possible; stabilizing exposed earth with grass, mulch, pavement or other cover as soon as possible; applying water or stabilizing agents to the working and haulage areas; covering or stabilizing stockpiled materials; and using covered haul trucks. To minimize the amount of additional vehicle emissions, a construction traffic control plan would be developed to limit disruption to corridor traffic.

Construction Impacts on Water Quality

Impacts. Construction impacts on water quality include the resulting habitat degradation, high levels of nutrients, and sedimentation in water bodies. To date, only a small amount of data is on file pertaining to water bodies in the study area. In the 1970's and 1980's there were reports of metals exceeding permitted limits that were not related to human activity. The latest information indicates that the Yellowstone Basin area is to be evaluated and assessed by the year 2003.

It is not believed that construction impacts to water quality would be substantial enough to cause water body quality in the study area to be greatly impaired.

Mitigation. The Best Management Practices would be utilized during the construction phase to mitigate any impacts. An Erosion Control Plan will be prepared as part of the design and permitting process.

Erosion Control and Construction Impacts on Wetlands

Impacts. Placing and removing any work bridges (if needed) and highway construction would cause both temporary soil surface disturbances and short-term siltation into waterways in the project area.

Mitigation. MDT would re-establish a permanent desirable vegetation community over all landform surface areas disturbed by construction. This action would be in accordance with M.C.A. 7-22-2152 and 60-2-208, and MDT would prepare a set of revegetation guidelines that must be followed by the contractor. These specifications would include instructions on seeding methods, dates, mix components, and the types and amounts of mulch and fertilizer. Seed mixes include a variety of species to ensure that areas disturbed by construction were immediately stabilized by vegetative cover. The seeding special provisions developed for this project are being forwarded to the Stillwater County Weed Control District office for approval.

Rip-rap would be placed around the proposed bridge's abutments to prevent scour. An erosion control plan for the proposed alignment would be submitted to the MDEQ's Water Quality Division in compliance with their Montana Pollutant Discharge Elimination System Regulations (ARM 16.20.1314). Best management practices would be used in the road design, using guidelines established in MDT's

"Highway Construction Standard Erosion Control Work Plan." The objective is to minimize erosion of disturbed areas during and following construction of this proposed project.

Temporary impacts during construction would be minimized using best management practices (MDT 1994 *Road Design Manual* and 1995 *Standard Specifications for Road and Bridge Design).* The design of the Preferred Alternative would include all feasible measures to minimize wetland impacts during construction, including:

- All wetland areas not to be impacted by the project would be protected from unnecessary encroachment by temporary fencing.
- No staging of construction equipment or storage of construction supplies would be allowed in a wetland or near any water-related area.
- Standard erosion control measures would be observed. All bare fill or cut slopes adjacent to streams or intermittent drainages would be stabilized as soon as possible.
- No fertilizers, hydrofertilizers, or hydromulching would be allowed near any stream, intermittent drainage, or wetland.
- The contractor would be provided with a copy of the Section 404 permit to ensure his awareness of the permit area and all other impacts. Any potential impacts beyond those authorized would be coordinated with the Corps of Engineers prior to occurrence.

Construction Impacts on Archaeological and Historic Resources

Direct physical impacts to cultural resources might occur during ground-disturbing activities associated with road building, such as vegetation removal, grading of cuts and fills, and preparation and use of temporary yards for equipment and materials storage. Direct impacts to archeological sites would vary as a function of site type, terrain, and construction technique. Whatever the conditions and techniques, they could impact the integrity of any cultural resources in the path of construction. Indirect impacts might also result from altering the setting adjacent to sites that are important for values other than their information content.

The ditches of the Lower Stillwater River Historic Irrigation District would be vulnerable during the construction process; however, impacts would be mitigated in accordance with the 1989 "Memorandum of Agreement" between FHWA, MDT, and SHPO.

During construction at the Half-Way Ranch site, the historic residence and outbuildings and the nonhistoric outbuildings would be relocated on site. Construction impacts would be mitigated in accordance with the 2001 "Memorandum of Agreement" between FHWA, SHPO, MDT, and the property owner.

The historic properties in Absarokee would not be physically impacted during construction. Short-term impacts at these sites resulting from construction activities would include the visual presence of construction equipment, noise and vibration emitted from construction equipment, and fugitive dust. These impacts would be temporary.

At the historic Riverside Inn site, areas of construction easements would be required for the proposed improvements to P-78 and the site's approach road.

The previous owner of the Petosa Homestead/Bare Ranch (24ST171) expressed concern over potential vibration impacts from pile driving or pavement breaking that could weaken the structure of the cobblestone house, which is eligible for the National Register of Historic Places. In mid 1991 research into this issue was done based on the California Transportation Department Highways Division extensive studies of vibration effects. The study considered a scenario that construction would be within 40± m (140± ft) of this residence. Results from the research indicated that while vibrations at this distance could be detected, no structural damage was likely to result. With the proposed roadway design, construction activities would occur over 70 m (230± ft) from the historic residence. This is greater than the distance described and therefore no impacts are likely.

Mitigation. In the event that archeological resources were discovered during construction, appropriate mitigation measures would be followed to ensure their identification, evaluation, and disposition.

Construction Impacts to Utilities

Impacts. Water might be required during construction to control fugitive dust. The availability of local and regional water supplies would be adequate to serve the site during construction. Utility service disruptions would be minimal. The proposed water and service improvements on Woodard Avenue in Absarokee would be undertaken in conjunction with the highway improvements in order to minimize disruption to those services and the community.

Mitigation. MDT and the contractor would work with the utility providers and adjacent property owners to ensure that service disruptions were avoided or kept to a minimum.

4.19 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term impacts are anticipated during the construction of the proposed improvements to P-78. These impacts include traffic disruption during reconstruction of the travel lanes and bridge replacements. These disruptions could result in short-term impacts to residential and business access, as well as local traffic flow.

As described in Section “4.18. Construction Impacts Related to the Build Alternatives”, short-term impacts related to noise, air quality, and water quality could also be expected. Mitigation measures would be employed to offset these impacts.

The proposed improvements to P-78 are consistent with local and regional planning for land use and the transportation corridor; thus the contribution to the maintenance and enhancement of long-term productivity of the towns within the study corridor, Stillwater County, and Montana would outweigh the local short-term impacts anticipated by the proposed project.

4.20 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PREFERRED ACTION

Construction of the proposed improvements to P-78 from S-419 to Columbus would involve the commitment of a wide range of the following resources:

- Natural resources in the form of land converted for highway use,
- Physical resources in the form of construction materials for the improved facility,
- Human resources in the form of labor employed during construction,
- Fiscal resources in the form of public funding for construction.

Land used for the Build Alternatives would be considered an irreversible commitment during the period that the land was used for a highway facility. Specifically, agricultural land, ranchlands, and wetlands would be irreversibly affected by the proposed alignment. However, if a greater need arose for the land or if the highway facility was no longer needed, the land could be converted to another use. At present, there is no reason to believe such a conversion would ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials, such as cement, aggregate, and bituminous material, would be expended. Additionally, large amounts of labor and natural resources would be used in the fabrication and preparations of construction materials. These materials are generally not retrievable; however, they are not in short supply and their use would not have an adverse effect upon the continued availability of these resources.

Any construction would also require a substantial one-time expenditure of both state and federal funds, which are not retrievable. The commitment of these resources is based on the concept that residents in the immediate areas, Montana, and the western region would benefit by the improved quality of the transportation system. These benefits would consist of improved accessibility and safety. Additionally, benefits of increasing safety and efficiency of travel and reducing travel times and efficiency of travel are anticipated to outweigh the commitment of these resources.

4.21 PRIMARY AND SECONDARY CUMULATIVE IMPACTS

Cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

Other Pending/Ongoing Actions

The following is a summary of area projects assessed to identify cumulative impacts related to the P-78 project presented in this document:

- *Access Management Plan for P-78 from Columbus to Red Lodge* — MDT has nominated the P-78 corridor from Columbus to Red Lodge for consideration as an access management plan project. The intent of the plan would be to manage access for public safety and to establish a framework for future development access. The development of the plan with public input would require the consideration of the varying access demands along the corridor. The anticipated start date for this study to develop a plan is Spring 2001. Until such a plan is in place, the current process and criteria for obtaining an approach permit (including driveway access) would continue.

- *Stillwater River Bridge Replacement* — MDT has received environmental clearance to replace the Stillwater River bridge at the Riverside Inn, which adjoins this project approximately 2.9 km (1.8 mi) northeast of Absarokee. That project (BR 9048(11); CN 2295) includes the removal of the existing structure and the construction of new approach roads and a bridge structure approximately 120 m west-southwest (395 ft upstream) of the present crossing.

The proposed new approach connection from P-78 would be designed to accommodate both the existing alignment of P-78 and the proposed alignment for the Preferred Alternative. Construction of the Preferred Alternative would reduce the grade of the approach road necessary to connect to the existing profile of P-78. This bridge project is currently under construction and until the P-78 project is undertaken, the approach road to the bridge will connect to P-78 on its existing alignment.

The "Draft Environmental Assessment and Section 4(f) Statement" prepared for that bridge replacement and approach road project identified no substantial environmental impacts; the project was approved by FHWA on April 23, 1999. FHWA subsequently signed a finding of no significant impact (FONSI) for the Stillwater River bridge project on June 3, 1999.

- *Sheep Creek Bridge Replacement* — MDT also has a pending bridge replacement project (BR 420-1(3)0; CN 3435) on the northwest side of Absarokee on S-420. The project is intended to replace the structure over Sheep Creek and to provide a minimum amount of new approach roadway to meet current design standards. A concrete box culvert is being considered as a replacement structure. Some in-stream work would be necessary to relocate an irrigation check structure that has caused a buildup of sediment under the existing bridge. This work is also located within the delineated floodplain for Sheep Creek. MDT would coordinate this pending project with MFWP, the Corps of Engineers, and the Stillwater County floodplain administrator regarding potential impacts. It is projected that no review of this pending project's plans, specifications, and estimates would be ready before October 2002; however, no substantial environmental or cultural impacts are expected within the limits of the pending project.

- *West Fork of the Stillwater Bridge Replacements* — MDT has a proposed project to realign the approach roads and replace the two structures over the West Fork of the Stillwater River in southwestern Stillwater County. This proposed project (BR 419-1(8)21; CN 3434) is on S-419 approximately 1 km (0.6± mi) north of the community of Nye and approximately 14 km (8.7 mi) west of Fishtail. Both existing bridge structures exhibit deteriorated substructures with large cracks and severe scaling, and they are rated as "functionally obsolete." The preferred alignment alternative would involve an alignment along the "section line" west of the existing alignment. This "section line" alignment would require the placement of the new structures approximately 243 /m (797± ft) upstream of the existing structures, and the construction of approximately 0.8 km (0.5 mi.) of new roadway. The bridge and approach roadways would be designed for an 8.4 m (27.6 ft) roadway width, consisting of two 3.6 m (11.8 ft) lanes and two 0.6 m (1.97 ft) shoulders.

- *P-78 from S-419 to the Red Lodge Project* — MDT has also recently nominated the segment of P-78 from S-419 to Red Lodge for reconstruction. That potential project is regarded as too distant in time to have any substantial cumulative social, economic, or environmental impacts on and/or related to this proposed project. Any substantial cumulative impacts associated with this nominated project would be documented during further development of that project.

- *Nye Road (S-419) Projects* — FHWA completed an environmental assessment for improvements to the Nye Road (S-419) from P-78 to the Stillwater Mine. The finding of no significant impact for this action was signed in 1993. The project was initially proposed in four segments. The first two segments have been completed, and the third segment will be constructed as soon as funding becomes available. The fourth segment, a 7.7 km (4.8 mi.) segment from Carter's Camp (RP 20.1±) to the Stillwater Mine (RP 24.9±) was anticipated to be a 3R project, with some areas of reconstruction. The scope of the improvements has changed, and the Stillwater Mining Company will fund the full reconstruction of this segment. This action has been approved by Stillwater County and is under construction.

- *Stillwater Mining Company Pipeline Expansion Project* — The Stillwater Mining Company is planning an expansion that includes the construction of a system of pipelines along Stillwater County Roads 419 and 420 to connect the new tailing impoundment to the mine's mill and tailing reclaim circuit. This pipeline would run parallel and east of the existing County Road 419 near Nye. Impacts to natural resources as a result of the pipeline would include increased localized sediment loading during installation, disturbance of approximately 100 ha (250± ac) of previously undisturbed terrestrial wildlife habitats, and disturbance of approximately 1.5 acres of wetlands between Hertzler Ranch and the mine site.

- *Absarokee Water System Improvement Project* — The town of Absarokee is planning to replace a portion of its domestic water system. MDT has been actively coordinating with the Absarokee Water and Sewer District to schedule roadway construction activities in a manner that would complement this water project.

- *CTEP Absarokee Sidewalk Project* — CTEP funds have been secured for this project which will establish a safe zone for pedestrians along South Montana Avenue and Willow Street. This project was also approved by Absarokee Town Ditch and Sylvester-Beazley-Runner shareholders on January 20, 2001.

- *MDT S-421 Joliet to Columbus* — Reconstruction of Highway S - 421 linking Columbus and Joliet was awarded top priority in the Billings District of MDT. The project will involve vertical and horizontal realignment and widening of the road. The earliest it would go to contract would be sometime after 2004.

Primary Cumulative Impacts Associated with These Actions

Of the projects summarized above, the Access Management Plan study, the Stillwater River bridge project, the Nye Road project (S-419), the S-421 project, and the Absarokee water system improvement project are the only projects near P-78 that might result in cumulative impacts.

The access management plan impacts can not be determined at this time as the plan has not yet been developed or determined if it would be implemented. However, if such a plan were implemented, the managed access would further improve safety on P-78.

There are beneficial cumulative impacts associated with the Nye Road improvements and the S-421 project. Segments of these roads have been or will be improved. These projects coupled with the proposed P-78 project would improve safety and travel efficiency for Stillwater Mine commuters and operations within the P-78 corridor to S-419 to access the mine.

The Stillwater River bridge project and the proposed P-78 project would both require right-of-way from the Riverside Inn site, which is eligible for the National Register of Historic Places. The new approach road for the relocated Stillwater River bridge would be outside the historic site; however, the private driveway (which was North Stillwater Road, a county road prior to the Stillwater bridge relocation) is within the historic site.

Due to the timing of these projects, the impacts of the proposed P-78 alignment and the realignment of the private driveway were identified as impacts associated with the P-78 project, therefore representing the cumulative impact of these two projects on the historic site.

The roadway improvements on Woodard Avenue in Absarokee for the P-78 project and the Absarokee water system improvements to the main line on Woodard Avenue would both impact the town during construction. In this case the construction impacts for each project would not be additive, but would be reduced by coordinating project tasks and schedules.

The issue of cumulative impacts has received increased attention in recent projects, but there is little consensus on how to best approach the issue. Even the Council on Environmental Quality provides little formal guidance on methodologies to assess these impacts or the depth of information to be developed. This is not to say assessment of the impacts is unimportant or that it has not been considered for this project, but that there are no universally accepted tools for analysis nor quantifiable results to present.

The impacts from the above projects can be quantified using the same methodology used in this *Environmental Impact Statement,* and none of these projects would individually or cumulatively result in substantial environmental impacts. What is difficult if not impossible to accurately quantify is the impact from the growth and development that many argue would be induced by these projects.

Secondary Cumulative Impacts Associated with These Actions

It must be recognized that growth and development are influenced by a complex interaction of natural and built environments, economic conditions, and individual perceptions, As noted in the land use sections of this *Environmental Impact Statement,* growth of an area is dependent on such factors as the availability of jobs, quality of life, property taxes, and quality and availability of schools and other public services. There are even areas in eastern Montana that experienced losses in population and employment following roadway improvements much more extensive than those proposed for this section of P-78.

Because this area is not currently experiencing, nor is it anticipated to experience, substantial increases in population or employment, and because the proposed improvements to P-78 would essentially maintain the existing roadway at two lanes very near its current alignment, it is not anticipated that this proposed action individually or cumulatively when considered with the other projects would have any substantial cumulative impacts relating to induced growth and development.

4.22 PERMITS REQUIRED

The proposed project's Build Alternatives, including each of the alignment options from Shane Creek to the Yellowstone River bridge, would require the following permits to be obtained prior to any relevant disturbances:

> This proposed project would be in compliance with both the water quality provisions of 75-5-308 M.C.A. for Section 3 (a) authorizations, and stream protection under Sections 87-5-501 through 509 M.C.A., inclusive. A 124 SPA Stream Protection Permit has been requested-from the MFWP. An on-site review of this proposed project, with representatives from MFWP and MDT, would be scheduled if necessary. All comments, suggestions, and/or conditions resulting from review of existing data and/or on-site inspections would be documented, included in this proposed project's files, and taken into account in the final design specifications.
>
> The proposed project would also require the following under the Clean Water Act (33 U.S.C. 1251-1376, as amended):
>
> A Section 402/Montana Pollutant Discharge Elimination System (MPDES) authorization from the MDEQ's Permitting and Compliance Division. The Build Alternatives would disturb approximately 80.5 ha (198.9 ac) of right-of-way and require a MPDES construction phase permit, which is issued in

response to the 1987 re-authorization of the Clean Water Act. The Clean Water Act requires the U.S. Environmental Protection Agency to institute a National Pollutant Discharge Elimination System (NPDES) permitting program for storm drainage systems or to approve the state's programs. EPA approved Montana's program in 1987.

Obtaining the MPDES permit requires development of a storm water pollution prevention plan that includes a temporary erosion and sediment control plan. The erosion and sediment control plan identifies best management practices, as well as site-specific measures to minimize erosion and prevent eroded sediment from leaving the work zone.

A Section 404 permit from the U.S. Army Corps of Engineers would determine if this project qualifies for a nationwide permit under the provisions of 33 CFR 330. Projects impacting waters of the U.S. (including wetlands and special aquatic sites) require a Section 404 permit. (Refer to Appendix F.)

A water use permit is required from Montana's Department of Natural Resources and Conservation.

All work would also be in accordance with the Water Quality Act of 1987 (P.L. 100-4), as amended.

A FEMA floodplain development authorization would also be required from Stillwater County's floodplain administrator.

Early coordination with USFWS and MFWP determined that formal Section 7 consultation under the Endangered Species Act was not required.

CHAPTER 5. LIST OF PREPARERS

The responsibilities and qualifications of the consultant team that prepared the P-78 environmental impact statement are listed below:

Preparer/Affiliation	Role	Education and Experience
Dale Paulson, P.E. Program Development Engineer FHWA	Lead Agency	B.S., Civil Engineering. Program development engineer and team leader for the statewide program areas of environment, planning, safety and design, right-of-way and materials. Over 30 years experience in highway engineering, environmental review, and project management.
Darrin Grenfell, P.E.-SC. Operations Engineer FHWA	Lead Agency	B.S., Civil Engineering, with an emphasis in highway engineering. Operations engineer with design, construction and maintenance responsibilities for the MDT Billings and Glendive Districts. Over 10 years experience in highway engineering, environmental review, and project management.
Karl M. Helvik, P.E. Operations Engineer, Billings District FHWA	Lead Agency	B.S., Agricultural Engineering. Former MDT Engineering Bureau chief responsible for environmental documents, stormwater runoff, water quality permits, and consultant contract administration. Previously responsible for MDT project management. Currently with FHWA. Over 20 years experience in highway and transportation design, project management, and environmental compliance.
Bruce Barrett, Billings District Administrator MDT	Project Management, Public Participation	33 years with MDT, with experience in construction, equipment, and maintenance.
Joel Marshik, P.E. Manager of Environmental Services; Coordinator of Tribal Affairs MDT	Project Management	Master's, Forestry; B.S., Civil Engineering; B.S., Biology. Over 35 years experience in civil engineering and natural resource project management activities.
Terry Yarger, P.E. Engineering Bureau Chief MDT	Project Management	B.S., Geological Engineering. Over 5 years geotechnical experience in private consulting and 15 years with MDT, with six of those years supervising MDT's Geotechnical Section. Four years experience in environmental services.
Fred Bente Consultant Project Supervisor MDT	Project Management	B.S., Civil Engineering. Responsible for managing and coordinating preconstruction projects being performed by consultants for MDT. Over 17 years of experience in highway engineering, environmental review, and project management.
Debra Perkins-Smith, AICP BRW, Inc.	Project Management, Public Participation, Alternatives Development, Project Documentation, 4(f)	Master's, Urban Regional Planning, with an Environmental Concentration; B.A., Government. Vice president of BRW and manager of the Transportation Planning and Environmental Planning Group of the Denver office. Over 18 years of experience in transportation and environmental planning.
Darryl L. James BRW, Inc.	Project Management, Public Participation, Project Documentation, Farmlands, Bike & Pedestrian	Master's, Public Administration, with an environmental concentration; B.A., Public Affairs and Political Science. Senior consultant with five years experience in transportation planning, environmental analysis, and technical report writing.
Beth Kunkel BRW, Inc.	Biological Resources	B.S., Wildlife Management. Experience in wetland services and natural resource assessments. Overall direction and supervision of BRW's Natural Resources Group.

Preparer/Affiliation	Role	Education and Experience
Jeffrey W. Olson BRW, Inc.	Biological Resources, Floodplains	M.S., Natural Resource Ecology; B.S., Botany. Over 10 years of experience performing plant community assessments, floristic studies, habitat evaluation of rare plant and animal species, wetland delineations, and documentation.
Kathleen L. Collins BRW, Inc.	Socioeconomic Conditions, Pedestrian and Bicycle, Document Preparation	Master's, Urban Recreation Planning; B.A., Mathematics. Transportation planner with experience in environmental technical documentation, public involvement, and community development.
Gregory J. Sorensen BRW, Inc.	Editor	B.A., International Affairs. Writer/editor with 26 years experience in environmental document preparation and production.
Saundra Dowling BRW, Inc.	Graphics	B.A. in Journalism with a Computer Graphics Diploma and a Certificate in Marketing. Currently enrolled in Graduate Studies for Urban and Regional Planning. Transportation Planner with over 16 years of experience in communications, public involvement, data collection and graphic design.
John Shoff, P.E. MSE-HKM, Inc.	Preliminary Design, Alternatives Development	B.S., Civil Engineering. Senior project manager with over 17 years of experience in transportation planning, design, and construction. Special training in traffic analysis, geometric design, visual impact assessment, public involvement, and NEPA compliance.
David C. Riegel MSE-HKM, Inc.	Preliminary Design, Alternatives Development	B.S., Construction Engineering Technology. Senior CADD designer with over 20 years experience in designing transportation projects for state, county, city, and tribal clients.
Lynn Peterson Ethnoscience, Inc.	Cultural/Historic Resources and Native Consultation	M.S., Anthropology. 10 years of experience in cultural resource management. A field director responsible for archaeological fieldwork and technical report writing.
Bill Polivka Dames and Moore	Hazardous Waste	B.S., Metals and Petroleum Geology. Manager of the Dames & Moore Denver office ESA/due-diligence program. Over 21 years of experience in project management, environmental site assessments, and characterizing the fate and transport of contaminants in soils and groundwater media.
James R. Foley, ASLA Wirth Design Associates	Visual Analysis	B.S., Landscape Architecture. Principal of the firm and manager of the Billings, Montana office. Over 14 years of diverse experience in visual analysis, transportation planning, land use planning, urban design, and landscape architecture.

CHAPTER 6. DISTRIBUTION LIST

6.1 FEDERAL AGENCIES

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service
Columbus Field Office
334 N. 9th Avenue
Columbus, MT 59019-0415
Attn: Philip F. Sandoval, District Resource Conservationist

U.S. DEPARTMENT OF ARMY, CORPS OF ENGINEERS
Omaha District Planning Division
215 North 17th Street
Omaha, NE 68102-4978
Attn: Candice Gorton, Environmental & Economic Section
Helena Regulatory Office
301 South park
Drawer 10014
Helena, MT 59626-0014
Attn: Allan Steinle, Montana Program Manager
Larry Robson, Project Manager
Todd Tillinger, Project Manager

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
810 East Main Street
Billings, MT 59105-3395
Attn: Sandy Brooks, Manager
Billings Resource Area

Fish and Wildlife Service, Ecological Services
2900 4th Ave. North
Room 300
Billings, MT 59101
Attn: Acting Field Supervisor

Fish and Wildlife Service, Montana Field Office
100 North Park Avenue, Suite 320
Helena, MT 59601
Attn: R. Mark Wilson, Field Supervisor

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration
2880 Skyway Drive
Helena, MT 59602
Attn: Dale W. Paulson, Program Development Engineer
Karl Helvik, Operations Engineer, Billings District

Federal Highway Administration
Office of Chief Council
Western Legal Services
201 Mission St. Ste 2100
San Francisco, CA 94105
Attn: Robert Rutledge

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VIII, Montana Office
Federal Building, 301 South Park, Drawer 10096
Helena, MT 59626-0096
Attn: John F. Wardell, Director

6.2 STATE AGENCIES

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
Lee Metcalf Building
1520 East Sixth Ave.
P.O. Box 200901
Helena, MT 59104-0437
Attn: Jan Sensibaugh, Director
Tom Ellerhoff, Administration Officer

MONTANA DEPARTMENT OF NATURAL RESOURCE CONSERVATION
1625 11th Ave.
P.O. Box 201601
Helena, MT 59620-1601
Attn: Bud Clinch, Director

Southern Land Office
Airport Park, Building IP9
Billings, MT 59105
Attn: Don Kendall, Area Manager

1371 Rimtop Drive
Billings, MT 59105
Attn: Keith Kerbel, Regional Manager

MONTANA DEPARTMENT OF TRANSPORTATION
2701 Prospect Ave.
Helena, MT 59620
Attn: Carl S. Peil, P.E – Preconstruction Engineer
John H. Horton Jr., P.E. – ROW Engineer
Joseph P. Kolman, P.E – Bridge Engineer
Joel M. Marshik, P.E. – Environmental Services Manager
Terry Yarger, P.E. – Engineering Bureau Chief, Environmental Services
Dave Hill – Biologist, Environmental Services
Gordon Stockstad – Resources Chief, Environmental Services

Sam Naseem, P.E – Consultant Design Engineer
Fred Bente, P.E. – Consultant Design Engineer
Dave Dreher – Public Involvement
Brent McCann – Right-of-Way
William S. Fullerton, P.E. – Bridge Design Engineer

424 Morey
P.O. Box 20437
Billings, MT 59620-0901
Attn: Bruce H. Barrett, District Administrator, Billings District No. 5
Gary Neville, District Engineering Services Supervisor

MONTANA ENVIRONMENTAL QUALITY COUNCIL
Office of the Director
Capitol Post Office
P.O. Box 215
Helena, MT 59620

MONTANA FISH, WILDLIFE & PARKS
P.O. Box 200701
Helena, MT 59620-0701
Attn: Jeff Hagener, Director
Glenn R. Phillips, Chief of Habitat and Protection Bureau Fisheries Division

2300 Lake Elmo Drive
Billings, MT 59105
Attn: Harry Nyberg, Regional Supervisor
Ken Soderberg, Resource Program Manager

MONTANA GOVERNOR'S OFFICE
Executive Office
Room 204, State Capitol
Helena MT, 59620-0801
Attn: Governor Judy Martz

MONTANA HIGHWAY COMMISSION
2037 Ridgeview Drive
Billings, MT 59105-3636
Attn: Thorm Forseth, Commissioner

MONTANA STATE LIBRARY
1515 E. 6th Ave.
P.O. Box 201800
Helena, MT 59620-1800
Attn: Roberta Gebhardt, Collections Management Librarian

MONTANA STATE HISTORIC PRESERVATION OFFICE
1410 8th Avenue
P.O. Box 201202
Helena, MT 59620-1202
Attn: Dr. Mark Baumler, Historian

6.3 LOCAL AGENCIES

Stillwater Senior Citizens Center
P.O. Box 92, 7 Woodard Avenue
Absarokee, MT 59001

Absarokee Water and Sewer District
P.O. Box 365, 15 North Woodard Avenue
Absarokee, MT 59001

Crow Tribal Council
Crow Tribal Headquarters
P.O. Box 159
Crow Agency, MT 59022
Attn: Clifford Birdinground, Sr., Chairman
George Reed Jr., Cultural Director

Stillwater County
P.O. Box 970
Columbus, MT 59019
Attn: Harold Blattie, Commissioner
Clifford Bare, Commissioner
Charles Egan, Commissioner
John F. Knorr, Superintendent of Roads and Bridges
Steve Bue, Bridge Supervisor
Acting President – Stillwater County Planning Board
Tammy McGill, Planner

Town of Columbus City Council
P.O. Box 549
Columbus, MT 59019

6.4 PUBLIC COPIES

Copies of this document will be available at the following Montana locations:

Absarokee:	Stillwater Senior Citizens Center 7 Woodard Ave.
Columbus:	Stillwater County Commissioners' Office 400 Third Ave. North
	Stillwater County Clerk & Recorder 400 Third Ave. North
	Stillwater County Library 27 North 4th St.
Red Lodge:	Carnegie Library 3 West 8th
Billings:	MDT Billings District Office 424 Morey
Helena:	Montana State Library 1515 E. 6th Ave.

CHAPTER 7. COMMENTS AND COORDINATION

The procedures for preparing a draft environmental impact statement emphasize cooperative consultation among agencies and the early and continued involvement of people who may either be interested in or affected by the project. This chapter documents the specific elements for the public and agency involvement program.

7.1 AGENCIES WITH JURISDICTION

Agencies with Jurisdiction and/or Permitting Authority:

Advisory Council on Historic Preservation (Review "Determinations of Effect")
Crow Tribal Council
Federal Highway Administration
Montana Department of Environmental Quality (MPDES authorization)
Montana Department of Natural Resources and Conservation
Montana Department of Transportation
Montana Environmental Quality Council
Montana Fish, Wildlife and Parks (*124SPA* permit)
Montana Governor's Office
Montana Highway Commissioners
Montana State Historic Preservation Office (Concur with "Determinations of Effect")
Stillwater County (FEMA Floodplain Development Permit)
U.S. Army Corps of Engineers (Clean Water Act, Section 404 permit)
U.S. Environmental Protection Agency

Other Agencies, Groups, or Persons Contacted, or Having Contributed Information:

Absarokee School District Superintendent
Absarokee Water District
Adventure Cycling Association (Missoula)
Columbus School District Superintendent
Columbus Town Council
Irrigation Ditch User Groups
Montana Natural Heritage Program
Montana Natural Resources Conservation Service
Montana State Library
Roadhouse Ditch Users
Stillwater County Commissioners
Stillwater County Planning Board
Stillwater County Planning Department
Stillwater County Sheriff
Stillwater County Weed Board
U.S. Department of the Interior, Bureau of Land Management
U.S. Fish & Wildlife Service

7.2 COOPERATING AGENCIES

Agencies with jurisdiction within the project's study area were contacted and invited to be cooperating agencies. The agencies who responded and indicated their commitment as cooperators are the Montana Department of Natural Resources and Conservation, the Montana Department of Environmental Quality, the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, and the Montana Fish, Wildlife and Parks. The U.S. Fish and Wildlife Service did not commit to being a cooperating agency, but it did express interest in being kept updated with the project's progress and would provide comments on a limited basis. (See Appendix D for letter responses from agencies.) The Bureau of Land Management declined the opportunity to be a cooperating agency. The Crow Tribe and the Natural Resources Conservation Service did not respond to the request; however, throughout the process they have been provided with all the materials that were received by the cooperating agencies.

Cooperating Agency Meeting

A meeting with cooperating agencies was held on April 27, 1999, to provide information on the status of the P-78 project, to identify schedule constraints and ask for agency assistance with a shortened schedule, and to identify agency issues or concerns. A field review was also conducted on this day.

The overall schedule for the environmental impact statement and the project was discussed. Points of agency review and input were identified as the review of the preliminary draft environmental impact statement, the comment period for the draft document before a final environmental impact statement would be released, and as part of the section 404 permit request from the U.S. Army Corps of Engineers. Due to the overall project schedule constraints, agencies were asked to shorten the review period for the preliminary draft. MDT agreed to notify the agencies in advance of the preliminary draft review period to help agencies in scheduling their review.

A summary of public comments and issues was provided for the November 1998 scoping meetings held in Absarokee and Columbus. Issues were grouped according to general comments relating to the project, including Nellie's Corner alignment alternatives and Absarokee improvements. (See Appendix G for meeting minutes and issues from November 1998 public meetings.) Project elements that may be of interest to the agencies were highlighted, including bridge replacements, channel changes, Nellie's Corner alternatives, and wetlands. Agency issues or concerns were then discussed and are summarized below in conjunction with the issues identified during the field review.

The field review started at S-419 south of Absarokee and continued north, ending at the south side of the Yellowstone River bridge south of Columbus. A potential wetland mitigation site for the P-78 project was checked; this site was initially developed for wetland mitigation for the airport expansion project.

The following issues were discussed at the meeting:

impacts to springs
the Yellowstone River bridge
section 404 permitting
permit for temporary use of water during construction
Swinging Bridge fishing access
Absarokee drainage ditches
potential wetland mitigation site
agency coordination
cultural resources

7.3 PUBLIC MEETINGS

Five public meetings were held between April 1998 and February 2000. Both formal presentations and open house formats were employed. (See Appendix G for public meeting minutes.)

Public Scoping Meetings — November 4 and November 5, 1998

Approximately 70 people attended a public scoping meeting on November 4, 1998, at the Absarokee Elementary School, and approximately 35 people attended a second meeting on November 5 in Columbus at the Little Metra Building at the fairgrounds. The purpose of these meetings was to receive public input about the MDT's proposed alternatives, as well as other concerns associated with the road improvements. Each meeting started with a presentation about the history and current status of the study, followed by an open house where people could visit five staffed stations — greeting, purpose and need, alternatives, existing corridor alignment impacts, and public involvement/comment. Presentations included the project's background, accident and traffic data, purpose and need, project schedule, an aerial photograph with a corridor centerline, alternatives for Nellie's Corner, alternatives, design objectives, environmental issues, roadway standard description, and example cross-sections.

Issues addressed at these meetings included:

- MDT's three alternatives for the curve known locally as Nellie's Corner
- improvements to the roadway and sidewalks in Absarokee
- Absarokee area comments about water and sewer line improvements
- right-of-way issues associated with the main street in Absarokee

Public comments could be provided by means of comment sheets, comment postcards, a tape recorder, or one-on-one discussions with project team members. An additional 34 comments were collected from the public by means of E-mail (1), letters (2), comment sheets (19), and meeting comment cards (12). (See meeting minutes in Appendix G for full list of public comments.)

Public Meetings — April 26 and April 27, 1999

Approximately 36 people attended a public scoping meeting on April 26, 1999, at the Absarokee Elementary School, and 27 people attended a second meeting on April 27, 1999, in Columbus at the Little Metra Building. The purpose of these meetings was to again receive public input regarding the MDT's proposed alternatives, as well as other concerns associated with the road improvements through this corridor. Bruce Barrett, MDT district administrator, began each meeting with a half-hour formal presentation, then held an open forum for questions and answers.

The agenda included the project background, the purpose and need for the project, an alternatives analysis evaluation matrix for the five alternatives at Nellie's Corner, corridor maps and detailed images (aerial photo, corridor map, cross-sections etc.) of Nellie's Corner, alternative alignment options for Nellie's Corner, and Absarokee re-construction options.

The main concern at the Columbus meeting was MDT's alternatives for the curve known locally as Nellie's Corner and the impacts of these alternatives on farming and ranching operations. The main concerns at the Absarokee meeting related to improvements in town and general safety improvements along the corridor.

During these meetings area residents made numerous site-specific comments, asked questions, and raised concerns. The majority of comments expressed concern over the urgency of these improvements to address safety issues. (See meeting minutes in Appendix G.)

MDT subsequently received about a dozen written comments from these meetings and took another 10 to 12 questions during the question and answer period. The majority of issues, much like the public scoping meeting comments, revolved around the urgency for road improvements to address safety issues. Other general comments included the loss of time in getting the project underway, turnouts for farm machinery, speed limits, water drainage issues, and shading that causes icing.

Public Meeting — February 17, 2000

A public meeting at the Stillwater Senior Citizens Center, in Absarokee, on February 17, 2000, was attended by 37 people. The purpose of this public meeting was to present information on the following alternatives and to receive public input:

- a climbing lane north of Absarokee
- a climbing lane south of Absarokee
- a 10.8-meter (36 ft) vs. a 9.6-meter (32 ft) paved top alternative (including 6-foot versus 4-foot shoulders)

The results of the meeting determined that the majority of the public did not support climbing lanes and supported the narrower road width of 9.6 meters (32 feet). Public meeting minutes, questions and comments, a summary of written comments, and a summary of impacts of the alternatives highlighted above can be found in Appendix G.

In addition, acceleration/deceleration lanes or left-turn lanes were suggested at three specific intersections along P-78: at S-419 (Fishtail Road), at Countryman Creek Road, and at North Stillwater Road. These locations were cited as having poor existing sight distances or congestion due to turning vehicles.

7.4 SMALL GROUP MEETINGS

Several small group meetings were held to address issues affecting citizens and other stakeholders of the Absarokee area. Another small group meeting involved parties concerned with the project alignment near the Riverside Inn. Refer to Appendix G for small group meeting minutes.

Absarokee

January 19, 1999. The purpose of the meeting, which was attended by 14 people, was to discuss alternatives within Absarokee for the P-78 project and to obtain information on the improvements planned by the Absarokee Water District. The following issues were discussed:

- Schedule of P-78 and utility improvements
- Coordination on Absarokee improvements
- Sidewalks, particularly in the vicinity of schools
- School issues — bus turnarounds along P-78
- Grove and Woodard Intersection in Absarokee

- Presentation of Absarokee alternatives at the upcoming public meetings

February 10, 1999. Thirteen people attended this meeting to discuss alternatives and to address questions and issues identified at the January 19 meeting. Topics addressed included:

- Status of water district improvements
- Walkway improvements
- Coordination of the schedules for the P-78 project and the water district improvements
- P-78 speed limits in or near Absarokee
- Planning funds for studies

Riverside Inn Area

A meeting was held on April 20, 1999, to discuss alternatives for P-78 near the Riverside Inn area with adjacent property owners; 13 people attended the meeting. Concerns about this area raised during the November 1998 public information meetings included inadequate sight distance under existing conditions, irrigation relocation, access, the amount of right-of-way to be acquired, and remaining parcel sizes. The preferred alternative incorporates the design preferred by meeting attendees.

7.5 OTHER PUBLIC INVOLVEMENT AND INFORMATION TECHNIQUES

To inform as many citizens and interest groups as possible a variety of public involvement techniques have been utilized throughout this process.

One-on-One Policymaker Interviews

A total of 21 interviews with policy makers were conducted in Absarokee on September 29 and 30 and on October 5 and 6 of 1998, after the project was reinitiated. The purpose was to determine appropriate methods for public involvement activities. Stillwater County commissioners, members of the Stillwater Planning Board, former Public Advisory Committee members, and county staff were interviewed.

Each person was presented a list of questions. Topics included length of residency in the study area, levels and duration of project involvement, frequency of P-78 use, particular project concerns, suggestions, and effective suggestions on forms of public involvement. Results of the 21 interviews were as follows: (1) except one, all interviewees had been in the area for the last nine years and had known about the project for four to five years; (2) all use Route P-78 for daily or recreational purposes; (3) specific safety concerns were identified and 77% stated increasing traffic volumes and growth were a concern; (4) 14% expressed desire to maintain rural character, while 32% noted the purpose and character of the road had changed; (5) 45% expressed concern over project delays. The information provided from these interviews was used to develop the program for community involvement.

Newsletters

Four newsletters were produced during the course of this study. Each is described below:

October 1998. The first newsletter was mailed to approximately 250 people in October 1998. The newsletter presented a public meeting notice and reintroduced the project to the community. Information was provided pertaining to the project description, project history, a project location map, and a definition of an environmental impact study (EIS). Also, the development of alternatives was highlighted. Information was presented on how people could get involved in the project.

March 1999. The second newsletter was mailed out to approximately 400 people (indicated on an updated mailing list) in March 1999. The newsletter thanked those who had participated in past project activities. Issues from the public scoping meetings that were presented included safety concerns, alignments at Nellie's Corner, right-of-way concerns and others. Ongoing coordination was reviewed, and two specific project locations were addressed: (1) Nellie's Corner, and (2) the town of Absarokee. In addition, the newsletter presented the current status of the environmental process. Finally, information on how to stay involved in the process was provided.

November 1999. The third newsletter, which was also mailed out to approximately 400 people, highlighted additional alternatives being developed. The project history and a short review of the two previous public meetings were outlined. The newsletter presented both written and graphic descriptions of cross-section alternatives for the rural segment of the highway and for the town of Absarokee. In addition, descriptions of alternatives and a graphic depiction of alternatives considered for Nellie's Corner were included. Finally, visual simulations of what the roadway would look like after construction, and information on how to keep posted on project progress was provided.

June 2000. The fourth newsletter was mailed out on June 13, 2000, to approximately 270 area residents. It presented a summary of the public meeting held in Absarokee on February 17, 2000. Details provided in the newsletter included the climbing lanes north and south of Absarokee and roadway width alternatives, with a 9.6 m (32 ft) and a 10.8 m (36 ft) paved surface. A preliminary evaluation of the two road widths was highlighted, along with an evaluation of the proposed climbing lanes. In addition, graphics of the two rural roadway width cross sections, plus a cross section for the climbing lane, were provided. An aerial map depicting the locations of the proposed climbing lane locations was also presented. The newsletter stated that the next mailing would indicate specifics of the DEIS release to the public and the time and place of the formal public hearing that would follow.

January 2001. The fifth newsletter was mailed out in January 2001 to approximately 300 area residents. It presented a summary of events that had occurred since distribution of the June 2000 newsletter. Topic areas included agency consultations, DEIS status, and how community input would be collected in relation to the DEIS. The newsletter indicated that the public release time of the DEIS and the place and time of the public hearing would be made known in the next project mailing.

Postcards

October 26, 1998. The Montana Department of Transportation mailed out approximately 3,700 postcards to residents in the towns of Columbus, Absarokee, Nye, and Fishtail, inviting them to a public meeting in Absarokee on November 4, 1998, and one in Columbus on November 5, 1998. Information was presented on whom to contact to get more project information and how to be added to the project mailing list.

April 6, 1999. The Montana Department of Transportation mailed out 346 postcards inviting citizens and stakeholders (both residents and area business owners) to attend a public meeting in Absarokee on April 26, 1999, and one in Columbus on April 27, 1999. Information was also presented on whom to contact to get more project information, or to be added to the project mailing list.

January 2000. The Montana Department of Transportation mailed out approximately 350 postcards inviting citizens to attend a public meeting at the Stillwater Senior Citizens Center in Absarokee on

February 17, 2000. The postcard briefly summarized progress to date. Information was also presented that indicated whom to contact to get more project information or to be added to the project mailing list.

Media

Prior to public meetings, notices were published as follows:

October 21, 1998. A meeting notice in the *Stillwater County News* about the public meetings planned for November 4 and 5, 1998.

October 28, 1998. A meeting notice in the *Billings Gazette* about the meetings planned for November 4 and 5, 1998.

February 9 and 16, 2000. Meeting notices in the *Stillwater County News* about the public meeting planned for February 17, 2000.

February 8, 2000. A meeting notice in the *Billings Gazette* about the public of the meeting planned for February 17, 2000.

7.6 PRIOR COORDINATION

The original notice of intent for this project was published in January 1993. The notice of intent was revised effective August 1998 to reflect the change in the southern terminus of the project. Between January 1993 and August 1998, one cooperating agency meeting, two public scoping meetings, and two public advisory committee meetings were conducted. A list of agencies consulted during this time frame, plus specific dates of activities held are outlined below.

Agencies Consulted. The following agencies were contacted or consulted by MDT between January 1993 and August 1998.

Advisory Council on Historic Preservation
Bureau of Land Management
Crow Cultural Committee
Environmental Quality Council
Federal Highway Administration
Montana Department of Health & Environmental Sciences
Montana Department of Natural Resources and Conservation
Montana Fish, Wildlife and Parks
Montana State Historic Preservation Office
National Resources Conservation Service
State Library
State Office of Budget & Program Planning
Stillwater County Planning Office
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish & Wildlife Service

Cooperating Agency Meeting and Field Review. An agency meeting was conducted on April 11, 1994, and a field review was held on April 13, 1994.

Public Meetings. Between January 1993 and August 1998 public scoping meetings were held on January 21 and May 6, 1993.

Public Advisory Committee Meetings. A Public Advisory Committee (PAC) was formed in January 1993 after the first publication of the notice of intent in the *Federal Register.* PAC meetings were held on January 21 and May 6, 1993, to develop and review alternatives for the Nellie's Corner area. The committee completed its tasks, and then the project was put on hold. After the filing of the revised notice of intent on August 31, 1998, some PAC members were interviewed in the fall of 1998 to determine their role in the restart of this project. From these consultations it was agreed that the Public Advisory Committee had completed their tasks and did not need to be re-instituted. It was also suggested that Montana Department of Transportation work directly with the communities and individuals to resolve project specific issues. The committee had provided a valuable service in providing guidance on the initial alternatives and moving the project forward. In the October 1998 newsletter, members of this committee were recognized and thanked for their contributions.

7.7 FUTURE PUBLIC INVOLVEMENT AND INFORMATION ACTIVITIES

Notice of Availability of Draft Environmental Impact Statement

The notice announcing the availability of the draft environmental impact statement will indicate the date, place, and time of a public hearing and where to forward any comments and questions regarding the project.

Public Hearing

The location of a public hearing on the draft environmental impact statement will be announced in the *Stillwater County News* and the *Billings Gazette*. Public hearing notices will also be sent to everyone on the mailing list.

DEIS Availability

Copies of this document will be available at the following locations for public review:

Absarokee: Stillwater Senior Citizens Center, 7 Woodard Ave.

Columbus: Stillwater County Commissioners' Office / Clerk & Recorder's Office
400 Third Ave. North

Stillwater County Library
27 North 4th St.

Red Lodge: Carnegie Library
3 West 8th

Billings: MDT Billings District Office
424 Morey

Helena: Montana State Library
1515 E. 6th Ave.

All individuals and groups on the project mailing list will receive a notice announcing the availability of this document.

PART II: SECTION 4(f) STATEMENT

CHAPTER 8. SECTION 4(F) EVALUATION

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303) declares that it is national policy to make a special effort to preserve publicly owned park and recreation areas, wildlife or waterfowl refuges, or any historic sites of national, state, or local significance. A Section 4(f) statement is prepared when a transportation project uses land from these sites. The use of such land for a transportation project is permitted only when the Federal Highway Administration has determined that there is no reasonable or prudent alternative to that use and that the project includes all possible planning to minimize harm to the resource resulting from such use.

Use of Section 4(f) land occurs when land is permanently incorporated into a transportation facility, when there is a temporary use of Section 4(f) land that is adverse, and/or when there is a "constructive use." A constructive use occurs when impacts due to the proximity of the project substantially impair the activities, features, function or attributes of the 4(f) resource.

8.1 PREFERRED ALTERNATIVE

Refer to Chapter 1.

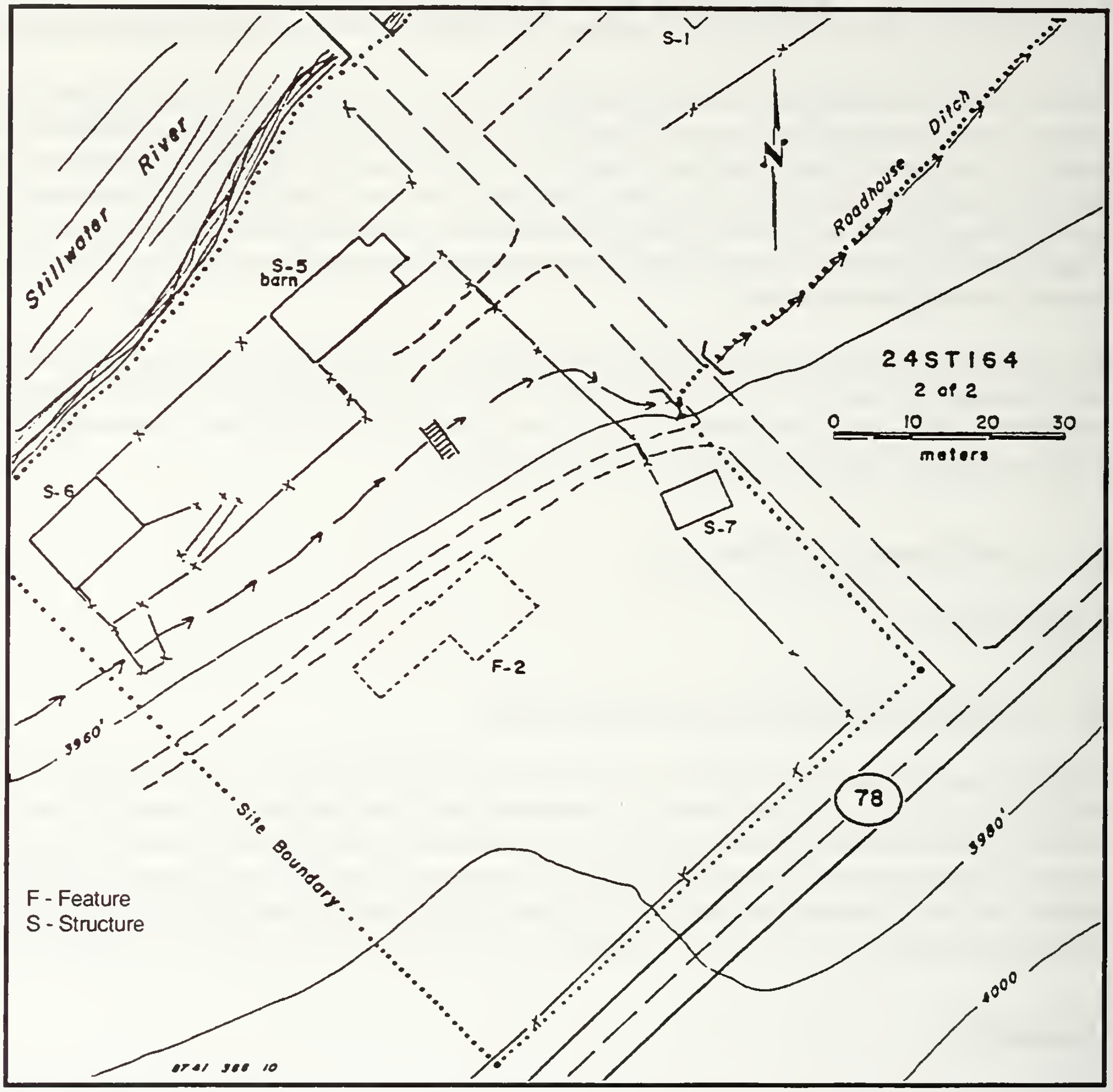
8.2 DESCRIPTION OF THE 4(F) RESOURCE

Within the corridor are several publicly owned park and recreation areas, as well as historic sites. The proposed action does not require the use or constructive use of the parklands or recreation areas. (Refer to "Chapter 4: Environmental Consequences" for information on parklands and recreation areas.) Several sites in the project corridor are eligible for listing or are listed on the National Register of Historic Places; however, only the Riverside Inn, the Lower Stillwater River Historic Irrigation District, and the Half-Way Ranch are impacted and are therefore considered 4(f) properties. These properties are evaluated below.

Riverside Inn

The Riverside Inn (24ST164) is located about 3.2 km (2 mi) north of Absarokee on the east bank of the Stillwater River. The portion of the site north of the county road (North Stillwater Road) has been altered to the point that it no longer represents the historic events with which it is associated. The main dwelling, where guests were lodged and fed, has been reduced in scale by about two-thirds and has been extensively remodeled. In addition, the setting has been further altered by the construction of a new garage.

The structures on the south side of the road appear to be intact and form an outbuilding complex (see Figure 8.1). Available information suggests that these buildings were constructed around 1905. Structure 5 (S-5), a large one-and-one-half story, gambrel-roofed barn, is the most prominent building at the site (Figure 8.2). An early owner constructed this wood frame building for use as a horse barn, and it was converted during the early 1920s for use as a dance hall. A distinctive characteristic is the small-paned, double, casement style windows. A flat-roofed projection extends over the front entryway and is supported on the north by two decorative, concrete piers. The foundation appears to be made of concrete, and the roof is covered with corrugated metal. The south elevation contains a set of double hinged doors that open out into a wooden corral. According to Alice Barron (1987), the current site owner, this elevation once had a large stone fireplace that has since been removed.


Stillwater River
S-1
S-5 barn
S-6
S-7
F-2
Roadhouse Ditch
24ST164
2 of 2
0 10 20 30
meters
78
3960'
3980'
4000
Site Boundary
F - Feature
S - Structure

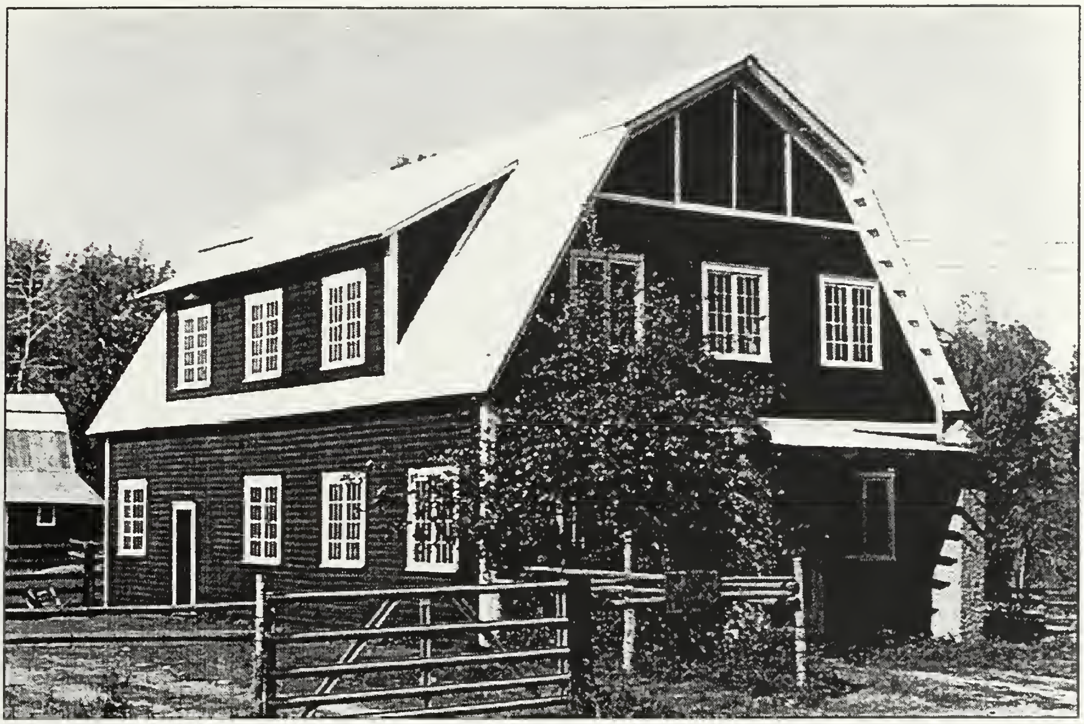
Source: Historical Research Associates, "Cultural Resource Inventory," July 1988.

Figure 8.1: Structures South of the Road at Riverside Inn

Structure 6 (S-6) is smaller barn at the south end of the corral (Figure 8.3). This also is a wood frame, gambrel-roofed building, but is much smaller in scale than structure 5. The building has a corrugated metal roof, and a concrete foundation. A small ventilator with a pyramidal roof is located in the center of the roof ridge. Two shed-roofed side wings are located along the northeast and southwest facing elevations.

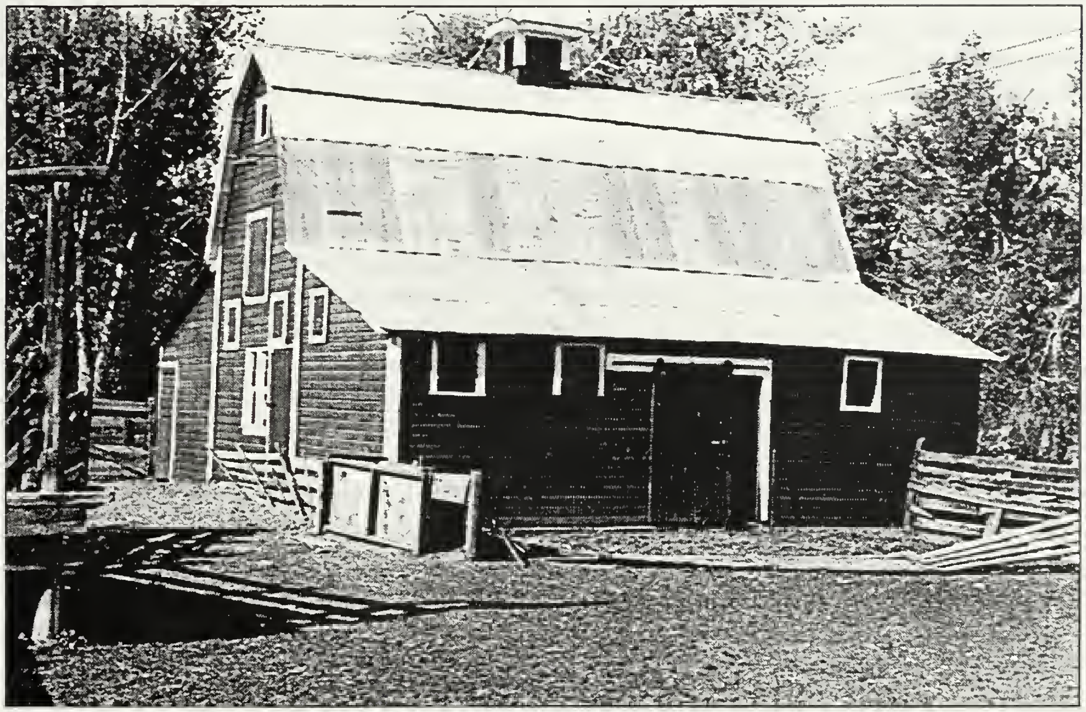
Structure 7 (S-7) is a one-story, wood frame building with a gable roof (Figure 8.4). The building is now used as a garage and has one large sliding door in the northeast-facing elevation. The structure has one interior brick chimney and a stone foundation.

Feature 2 (F-2), a large cleared area that is roughly rectangular in shape, is also located on the south side of the site. It marks the former location of a structure.



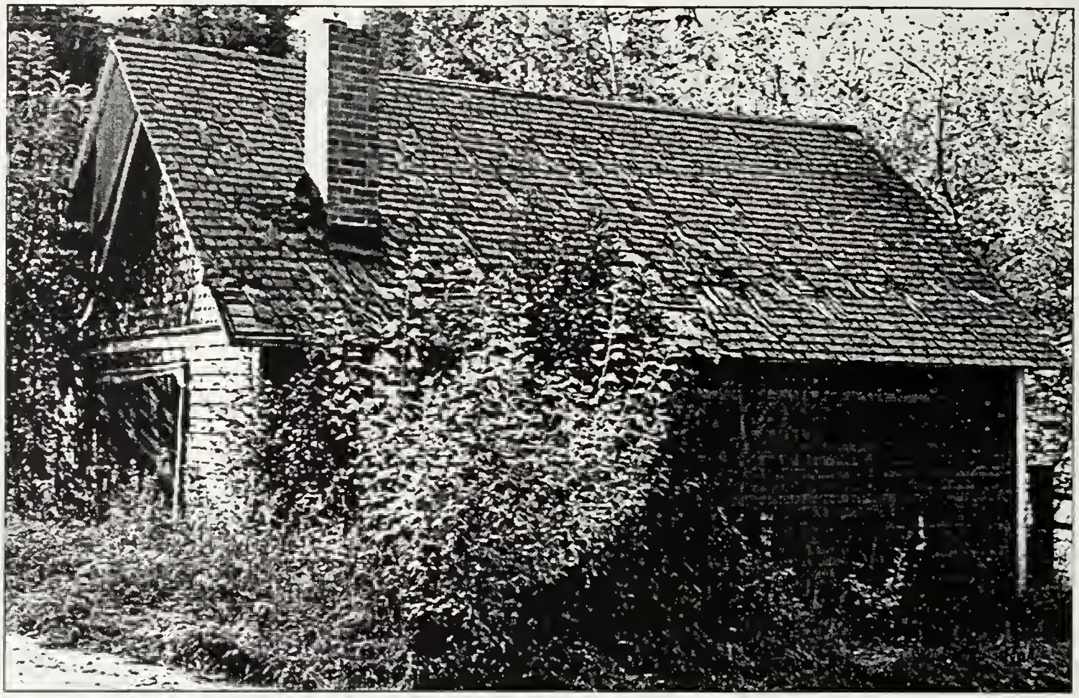
Source: Historical Research Associates, "Cultural Resource Inventory," July 1988.

Figure 8.2: Structure 5 at Riverside Inn



Source: Historical Research Associates, "Cultural Resource Inventory," July 1988.

Figure 8.3: Structure 6 at Riverside Inn



Source: Historical Research Associates, "Cultural Resource Inventory," July 1988.

Figure 8.4: Structure 7 at Riverside Inn

The two parcels that are now divided by a county road were once part of a 156-acre homestead claim patented by John Mulherin in January 1902. A 1998 "Cultural Resource Inventory" indicates that John and his wife, Martha, came to the Stillwater area about 1892, soon after it was opened to non-Indian settlement (Historical Research Associates [HRA] 1988). Therefore, it is probable that the Mulherins had been in the area and were possibly living on the land for nearly 10 years before patenting their claim.

The 1998 "Cultural Resource Inventory" states that in 1903 the Mulherins sold the property to Nancy and John McBroom. In 1907 the McBrooms sold the property to Solomon A. Leaverton for $5,000. Local informants indicated that Leaverton operated the property as both a working ranch and as a vacation resort, and he had regular customers from Billings who came to fish the Stillwater River. He lodged the guests in a large, three-story house and provided meals to people who stayed overnight. One of Leaverton's sons drove a freight line between Columbus and Absarokee, often staying at the ranch with his passengers. The report also indicates that Leaverton established the Riverside Inn in 1905. The Leavertons may have occupied the site in 1905, although the formal property transfer did not occur until 1907. The resort remained open into the early 1930s.

Portions of this site are eligible for nomination to the National Register of Historic Places. The south part of the site, which contains the outbuildings from the Leaverton Ranch, is in very good condition. The buildings generally have been well maintained, and the only noncompatible material that has been added to the structures is the corrugated metal for the roofs on the two barns. This complex of structures appears to be eligible for the national register since it clearly represents the "working component" of an early ranching endeavor established prior to 1910 (criterion a). The horse barn, the dairy barn, and the associated corral, as well as the garage, function together as a visual unit and represent a work area where routine chores associated with livestock handling were carried out. The site also functions as a local landmark and as a representation of a community gathering place. Although remembrances of specific site usage vary between individuals, all of the local residents interviewed indicated that the big red barn was used during the 1920s and 1930s as a dance hall. People from Absarokee and the surrounding area gathered at the Riverside Inn for Saturday night dances in the barn and dinner at the house on the north side of the county road. Although the inn itself is no longer recognizable as such, local people remember and associate the big red barn with this period. With the exception of the removal of the fireplace from the southern elevation, the barn looks today as it did in the 1920s.

Besides the site's significance as a local gathering place, the main barn possesses individual architectural distinction (criterion c). This building is a good example of the Colonial Revival style of architecture popular in the United States between about 1880 and 1955. The structure displays elements of the Craftsman style in the gambrel eaves and the entrance roof with exposed rafter ends and concrete piers.

Lower Stillwater River Historic Irrigation District

The Lower Stillwater River Historic Irrigation District is an extensive system of major and minor irrigation ditches within the P-78 highway corridor. As shown in Figure 8.5, the Lower Stillwater River Historic Irrigation District has five irrigation systems within the area of potential effect:*

Kem-Mulherin ditch (24ST205)
Roadhouse ditch (24ST206)
Scott ditch (24ST208)
Shane ditch (24ST209)
White ditch (24ST210)

These irrigation ditches are simple, unlined features, and some of them have associated features such as concrete culverts or flumes. Most of the irrigation systems recorded within the project area appear to have been built prior to 1900. General Land Office plats for the entire project corridor were surveyed in 1899 and show an impressive system of Lower Stillwater River Historic Irrigation District irrigation ditches, drawing water from Butcher Creek, East Rosebud Creek, Rosebud Creek, and the Stillwater River (see Figure 8.5). The wide bottomlands adjacent to these stream channels proved excellent for growing hay, and they provided winter shelter for the bands of sheep kept by most area ranchers during this period.

The system of irrigation ditches in the East Rosebud Creek and Stillwater River drainages recorded during the "Cultural Resource Inventory" represents improvements made by one or several families who were attempting to improve the production capabilities of their homestead properties. Landowners along a few of the larger ditch systems incorporated, and the members in ditch companies were assessed an annual per-share fee for maintenance and service. In other cases, individual members were responsible for maintaining and repairing features serving their individual lands.

The early establishment of irrigation ditches in the area appears to have influenced later community development. The course of the original county road, which was constructed in 1891–92, was plotted around ditches and open lands suitable for agricultural development. Construction of the current roadway in 1935 basically followed the route of the county road, and it caused only slight disturbance to the existing ditches. An examination of the 1935 engineering plans for the highway indicates that the main impact to the ditches consisted of putting in new culverts where the roadway crossed the ditches, plus a few minor realignments of the ditch channels.

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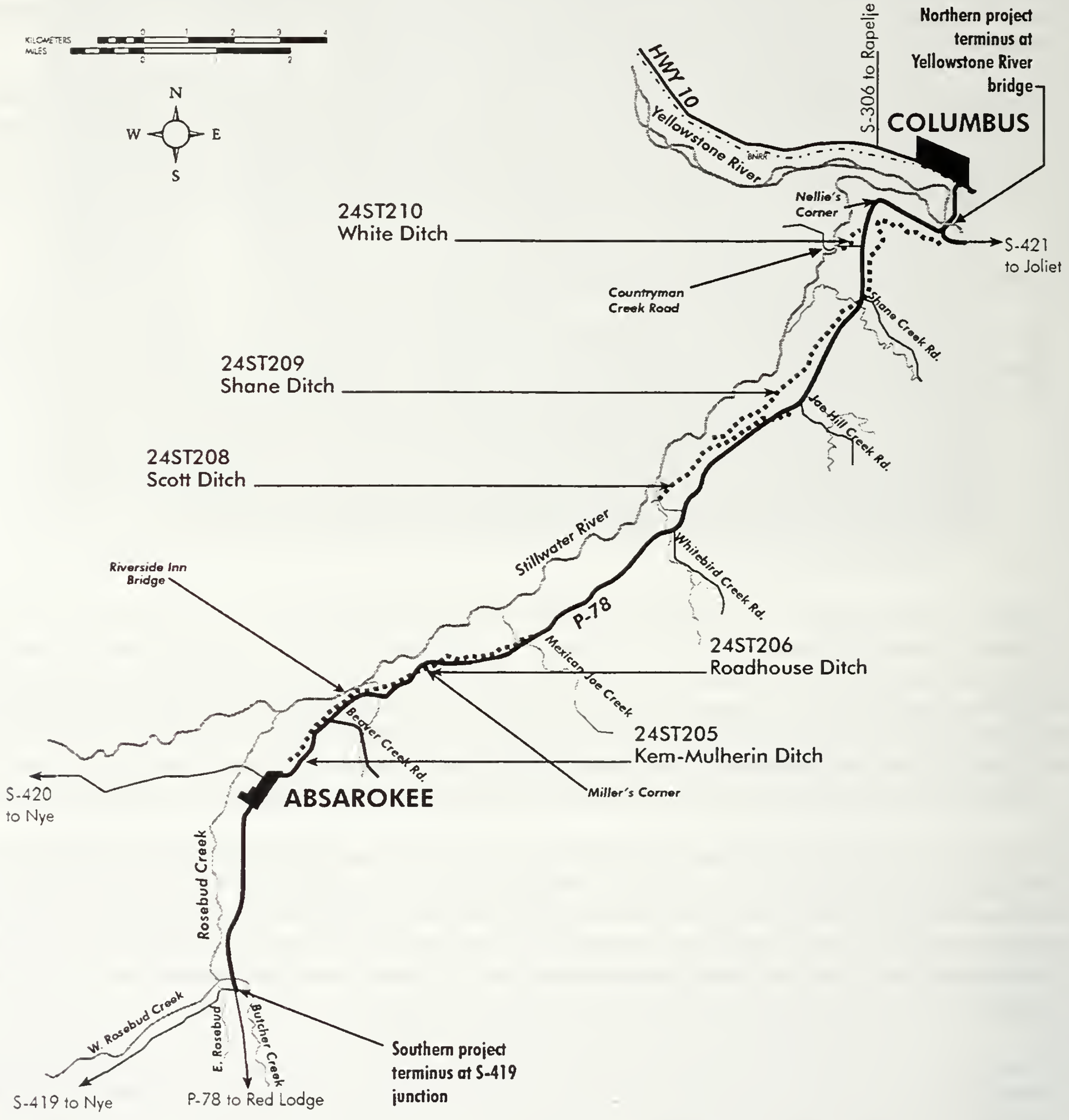
* The Agency ditch (24ST204), also included in the district, is outside the study area. In a later determination the Butcher Creek-Rosebud ditch (24ST214) was identified as a contributing element to this district; however, it is also outside the study area. Descriptions and historical background information for the Butcher Creek-Rosebud. Agency, Kem-Mulherin, Roadhouse, Scott, Shane, and White ditches (which comprise the Lower Stillwater River Historic Irrigation District) are available from MDT Environmental Services.


KILOMETERS
MILES
N
W
E
S
HWY 10
Yellowstone River
BNRR
S-306 to Rapelje
Northern project terminus at Yellowstone River bridge
COLUMBUS
Nellie's Corner
24ST210 White Ditch
S-421 to Joliet
Countryman Creek Road
Shane Creek Rd.
24ST209 Shane Ditch
Joe Hill Creek Rd.
24ST208 Scott Ditch
Stillwater River
Whitebird Creek Rd.
Riverside Inn Bridge
P-78
Mexican Joe Creek
24ST206 Roadhouse Ditch
24ST205 Kem-Mulherin Ditch
Beaver Creek Rd.
Miller's Corner
S-420 to Nye
ABSAROKEE
Rosebud Creek
W. Rosebud Creek
E. Rosebud
Butcher Creek
Southern project terminus at S-419 junction
S-419 to Nye
P-78 to Red Lodge

Source: Historic Research Associates, "Cultural Resource Inventory," July 1988.

Figure 8.5: Lower Stillwater River Historic Irrigation District: Ditches within the Area of Potential Effect

The elaborate pattern of ditches in relation to the natural and human-made landscapes of fields and pastures is representative of an important aspect of agricultural settlement during the early historic period in Montana. Although some of the ditches appear to possess individual historical significance, they are best considered as contributing elements to a larger historic irrigation district.

The Lower Stillwater River Historic Irrigation District includes all ditches built between 1875 and 1920. The beginning of the district's period of significance corresponds with the establishment of a permanent Crow Agency at Butcher Creek (and the construction of Agency ditch), and the end of the period of significance corresponds with the end of the second land rush in the Stillwater Basin.

Half-Way Ranch

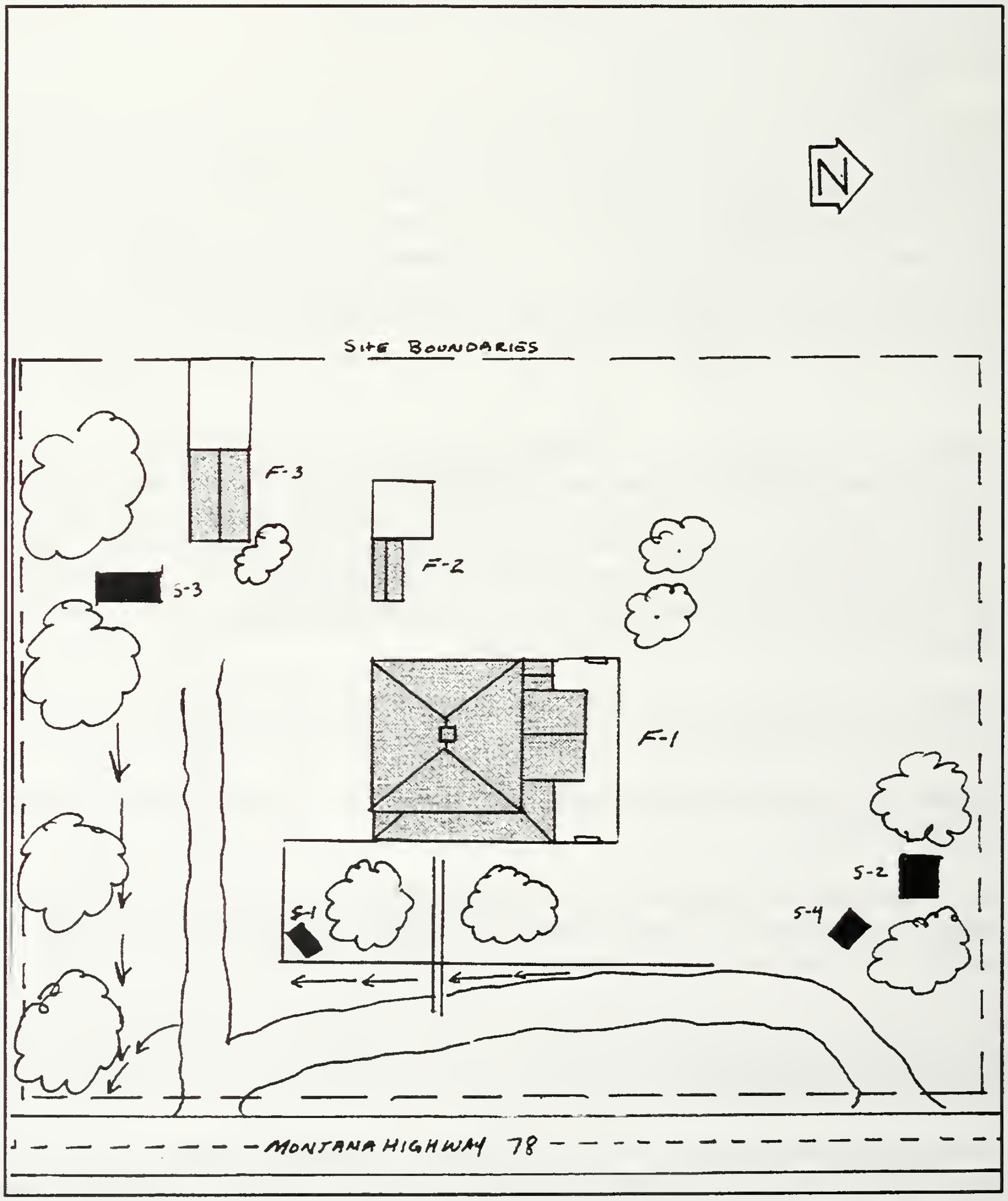
The Half-Way Ranch site (24ST166) is approximately 11.3 km (7 mi) south of Columbus, midway between Columbus and Absarokee, on the west side of the P-78 corridor. The Half-Way Ranch was established shortly after the Stillwater River valley'was ceded from the Crow Reservation and the area opened for homestead settlement. The property's original owner, Everett McBride, appears to have lived on the site prior to its official availability as a homestead — a pattern common to this area. Once established, the site functioned as a stop on the road between Columbus (a Northern Pacific Railroad station), Absarokee, and Red Lodge. Consequently, it was a significant community gathering place in this portion of the valley. The Half-Way Ranch site consists of several buildings and structures, as shown in Figure 8.6.

> Feature 1 (F-1) is a two-story vernacular American four-square style residence facing east toward P-78 (Figure 8.7). The building rests on a fieldstone foundation, and most of the windows are original. The gable roof addition was likely added in 1940s and has become part of the historic fabric and appearance of the residence. Steel siding was added sometime before 1988. The siding, however, closely resembles the original clapboard siding that is still intact underneath and does not substantially detract from the overall integrity of the residence, as nearly all of the original detailing, massing, and fenestration are intact.
>
> Feature 2 (F-2), which is west of the residence, is a small wood-frame outbuilding with a gable roof that currently functions as a chicken coop (Figure 8.8).
>
> Feature 3 (F-3) located southwest of the residence is a wood frame double-bay garage with gable roof (Figure 8.9).
>
> Other structures (S) located on the site include a playhouse (S-1), relocated tree house (S-2), a modern garden shed (S-3), and a doghouse (S-4). None of these structures appears to date from the historic period, and they were not considered contributing components to the site.

The site is delineated on the north and south by mature (100+ years) cottonwoods. A small partially cobblestone-lined drainage/field ditch runs along the east boundary of the site. It draws water from the adjacent Whitebird ditch (24ST207).

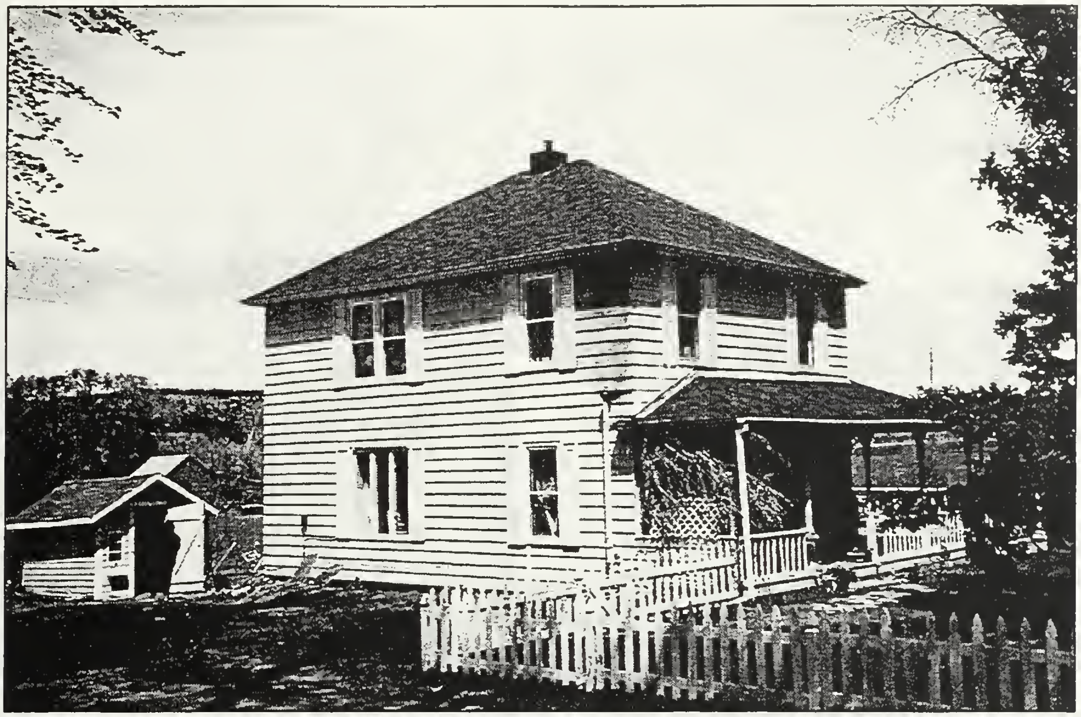
Everett McBride obtained the patent to the 64.4 ha (159.2 ac) homestead in January 1903 and the deed in the following year. The existing residence (F-1) and outbuilding (F-2) were likely constructed by McBride sometime around 1907. The cottonwood trees south of the residence may also have been planted about the time he obtained title to the property. The Half-Way Ranch functioned as an important community center and stopping place for traffic on the road between Columbus, Absarokee, and Red Lodge. Travelers would stable their horses in the barn across the road from the residence and spend nights at the house. McBride sold the property in 1910 and through subsequent sales, it continued to operate as a ranch. The garage (F-3) was likely added by a rancher in the early 1900s. In 1966 the sale ended the site's history as a working ranch, and the property was subdivided, separating the barn and other outbuildings located across Highway P-78 from the parcel.

The property retains sufficient integrity to delineate it as representative of late 19th and early 20th century rural architecture, and it is eligible for nomination to the National Register of Historic Places under two criteria (a and c; Montana Cultural Resource Inventory Forms 1 and 5; site 24ST166).



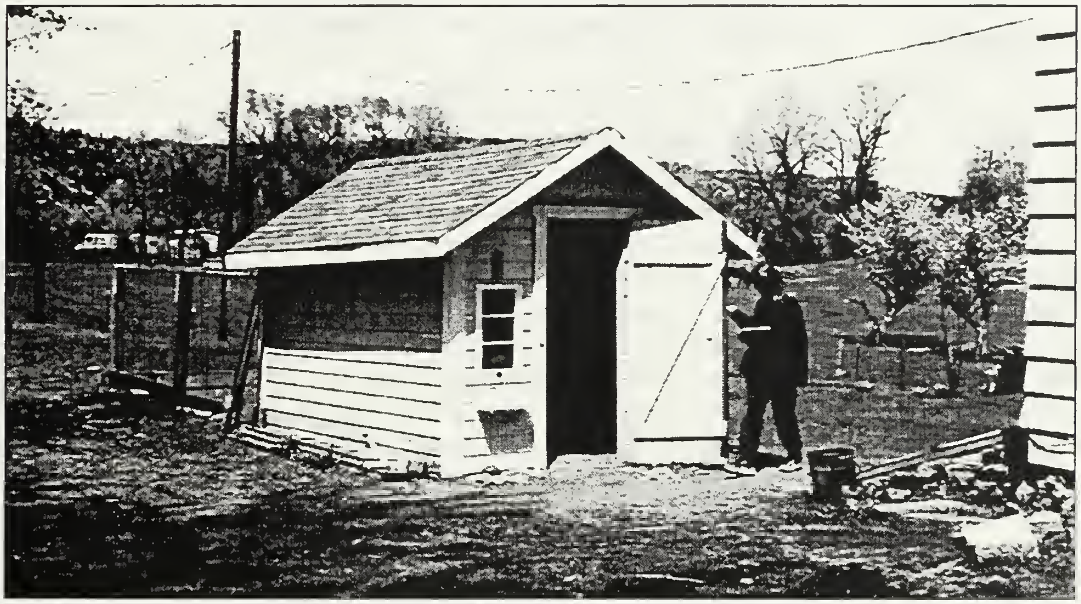
Source: MDT, "Montana Cultural Resource Inventory: Half-Way Ranch," rev. May 2000.

Figure 8.6: Half-Way Ranch Site Map



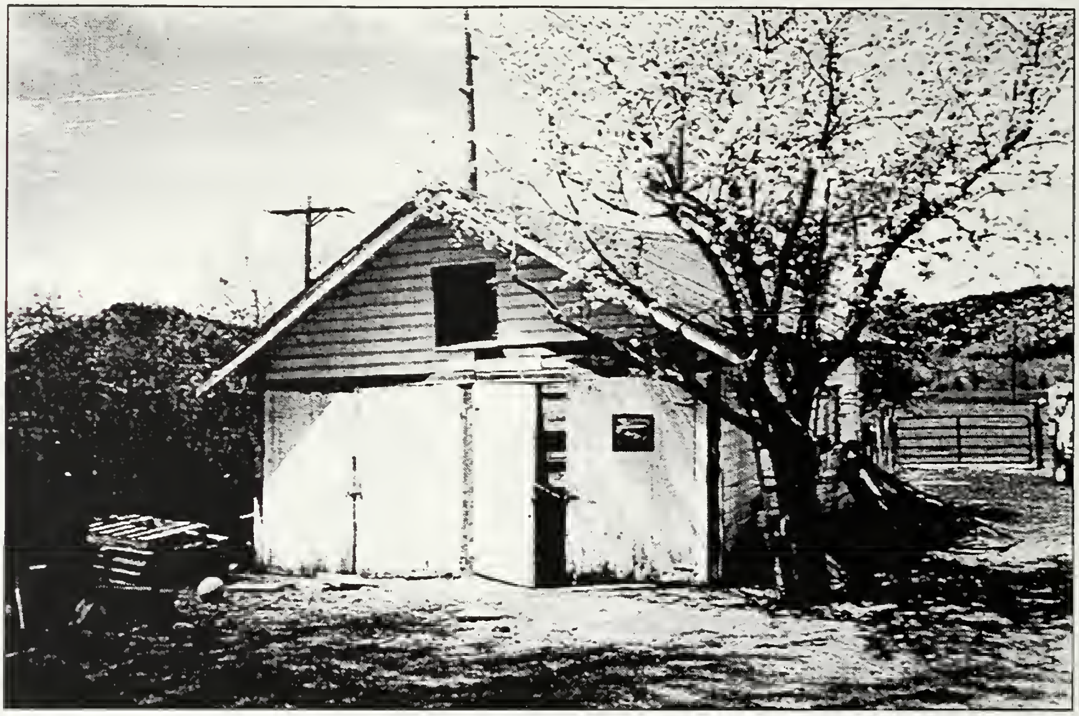
Source: MDT, "Montana Cultural Resource Inventory: Half-Way Ranch," rev. May 2000.

Figure 8.7: Residence (F-1) at the Half-Way Ranch



Source: MDT, "Montana Cultural Resource Inventory: Half-Way Ranch," rev. May 2000.

Figure 8.8: Outbuilding (F-2) at the Half-Way Ranch



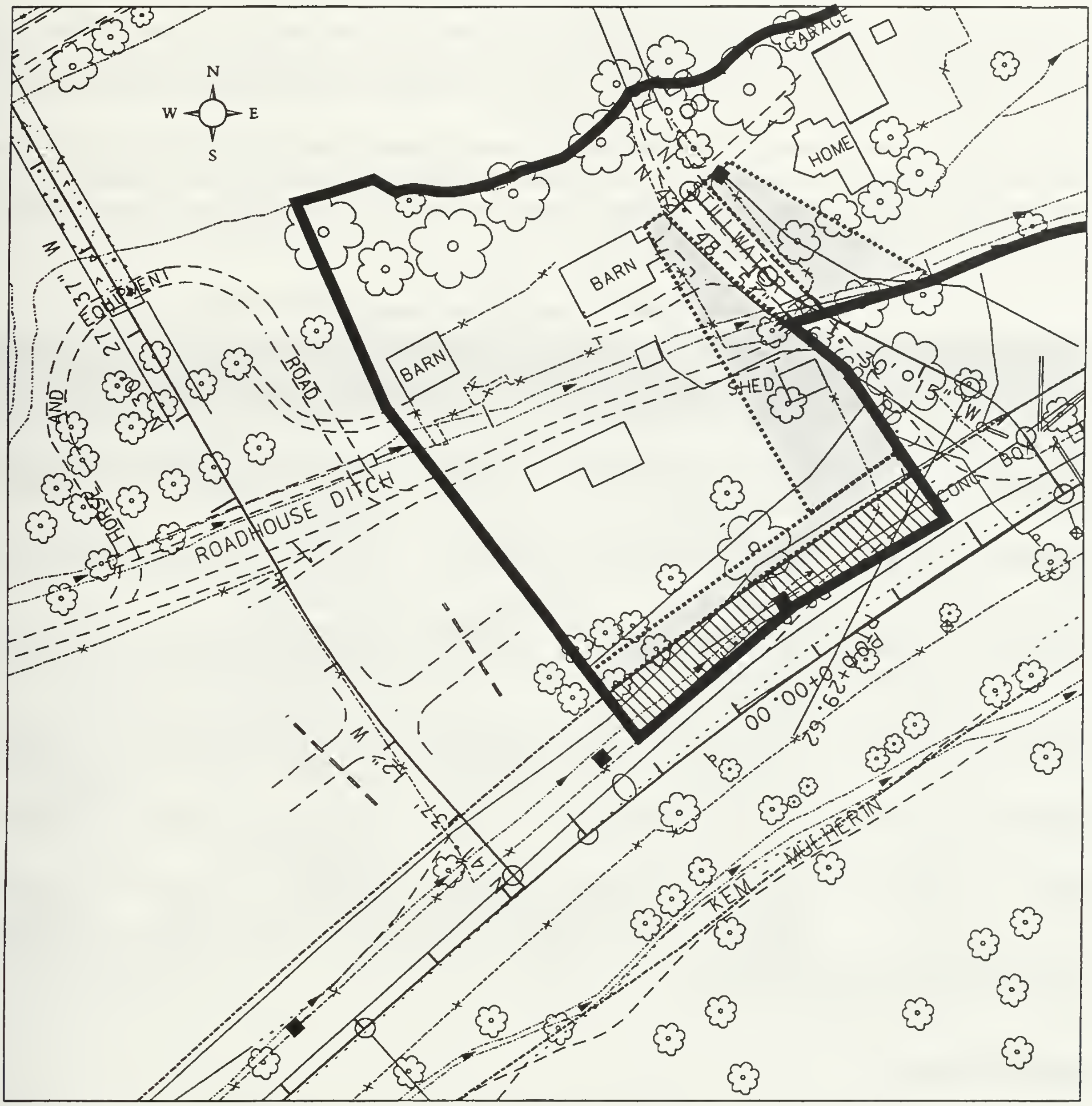
Source: MDT, "Montana Cultural Resource Inventory: Half-Way Ranch," rev. May 2000.

Figure 8.9: Garage (F-3) at the Half-Way Ranch

8.3 IMPACTS ON 4(F) RESOURCES

Riverside Inn

Impacts to the Riverside Inn under the six Build Alternatives (A1, B1, and D1; A2, B2, and D2) would be the same because the right-of-way requirements would not vary. As Figure 8.10 indicates, the southern boundary is adjacent to the existing highway and the county road to the northwest. A steep hillside and the historic Kem-Mulherin irrigation ditch to the east, together with the Riverside Inn, the Stillwater River, and the historic Roadhouse irrigation ditch to the west, preclude any major alignment shifts. While the proposed center line for the P-78 improvements would shift slightly to the east away from the site, the wider roadway would result in the fill slope extending approximately 5 m (16 ft) into the site. The construction easement would accommodate the irrigation relocation parallel to the roadway. The rest of the easement would allow reconstruction of the Stillwater Road along the north property boundary. The linear encroachment would impact approximately 20 m (66 ft) along the southeastern boundary of the site, resulting in the need for 729 sq m (7,844 sq ft) of additional right-of-way. An irrigation ditch parallel to the existing P-78 alignment would also be relocated farther northwest, outside the highway right-of-way. Relocating the irrigation ditch would require a 420 sq m (4,521 sq ft) construction easement. In addition, the existing county road would be realigned to intersect with the realigned P-78. The function of this county road would change to a private driveway after the relocation of the Stillwater Bridge (the bridge relocation is a separate project). As a private approach road, the roadway modifications within the historic site would result in the need for a construction easement of 825 sq m (8,880 sq ft) south of the existing county road. Areas requiring construction easements would be temporarily occupied by construction equipment. While the property owner would maintain ownership of the land, the construction easement area might be physically altered due to grading or the relocation of irrigation facilities. On the north side a 420 sq m (4,521 sq ft) construction easement would be required for roadway modifications of the private approach road. No existing structures would be affected.


N
W
E
S
GARAGE
HOME
BARN
BARN
SHED
EQUIPMENT
ROAD
ROADHOUSE DITCH
HORSE
AND
STILLWATER
CONC BOX
KEM - MULHERIN

Source: MSE-HKM, April 2000.

▬ = Site Boundary

▨ = Additional Right-Of-Way

⬚ = Construction Easement

Figure 8.10: Riverside Inn Site Impacts

Lower Stillwater River Historic Irrigation District

The ditches of the Lower Stillwater River Historic Irrigation District are near the existing roadway and in some locations are parallel to the roadway or cross the roadway today. Approximately 60% of the length of this 25.7 km (16 mi) corridor is near a ditch of the Lower Stillwater River Historic Irrigation District.

The design for the proposed P-78 improvements would impact some of the ditches in the Lower Stillwater River Historic Irrigation District, requiring portions of the ditches to be relocated as well as existing ditch crossings to be replaced. These impacts are identified for each of the irrigation ditches that are contributing elements to the district.

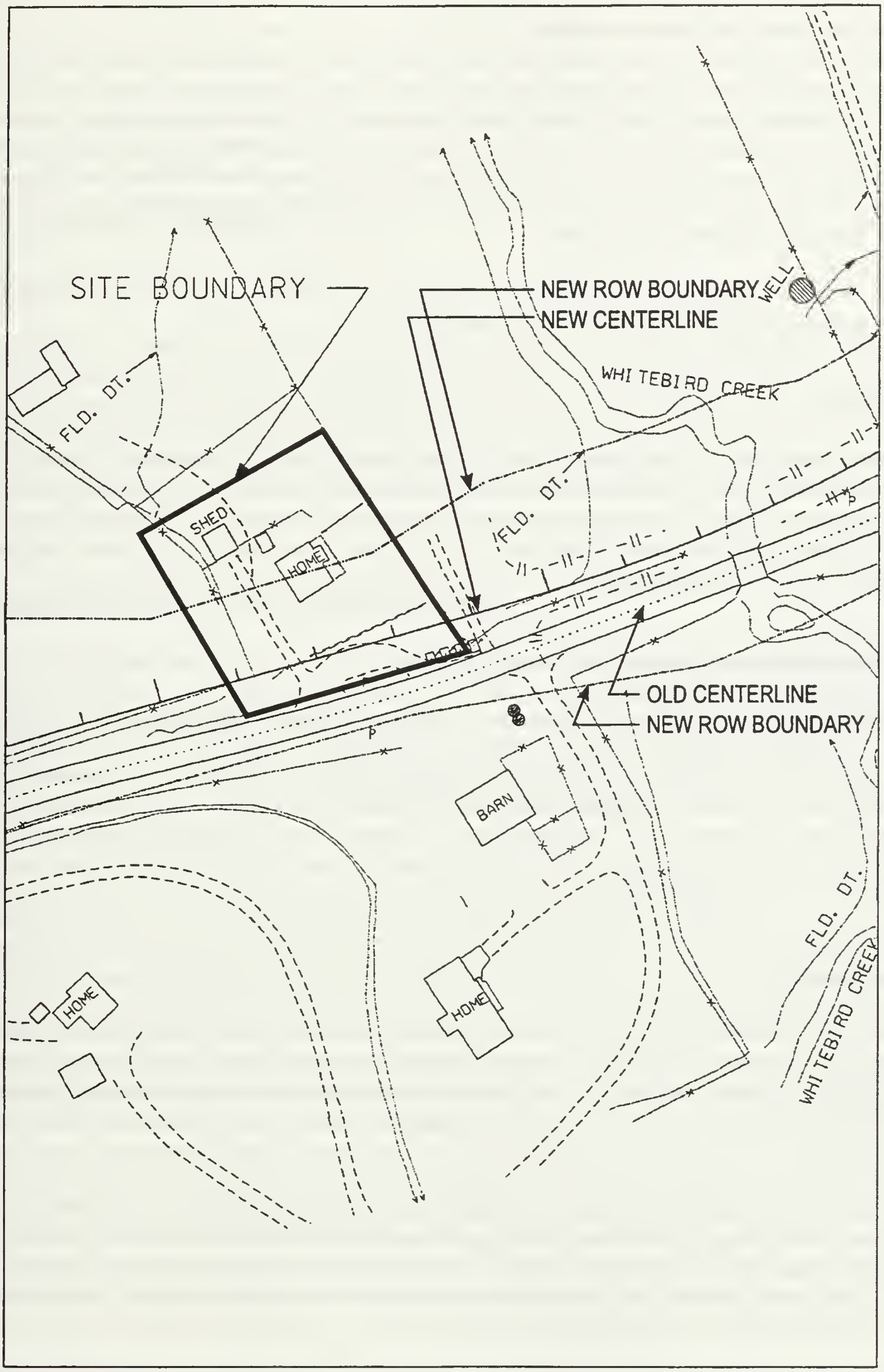
Table 8.1: Lower Stillwater River Historic Irrigation District Impacts

		9.6 m (32 ft) Cross Section			10.8 m (36 ft) Cross Section		
	No-Build	Alternative A1	Alternative B1	Alternative D1	Alternative A2	Alternative B2	Alternative D2
Butcher Creek-Rosebud Ditch	Outside APE	Outside APE	Outside APE	Outside APE	Outside APE	Outside APE	Outside APE
Agency Ditch	Outside APE	Outside APE	Outside APE	Outside APE	Outside APE	Outside APE	Outside APE
Kem-Mulherin Ditch	No Impact	Relocation of 581 m (1,906 ft); 1 crossing	Same as A1	Same as A1	Relocation of 771 m (2,529 ft); 1 crossing	Same as A2	Same as A2
Roadhouse Ditch	No Impact	Relocation of 3,109 m (10,200 ft); 6 crossings	Same as A1	Same as A1	Relocation of 3,134 m (10,282 ft); 6 crossings	Same as A2	Same as A2
Scott Ditch	No Impact	Relocation of 1,770 m (5,807 ft); 1 crossing	Same as A1	Same as A1	Relocation of 1,825 m (5,987 ft); 1 crossing	Same as A2	Same as A2
Shane Ditch	No Impact	Relocation of 393 m (1,289 ft); 1 crossing	Same as A1	Relocation of 150 m (492 ft); 5 crossings	Relocation of 393 m (1,289 ft); 1 crossing	Same as A2	Relocation of 150 m (492 ft); 5 crossings
White Ditch	No Impact	No Impact	2 crossings	No impact	Relocations of 93 m (305 ft); no crossings	2 crossings	No impact
Total	None	Relocation of 5,853 m (19,202 ft); 9 crossings	Relocation of 5,853 m (19,202 ft); 11 crossings	Relocation of 5,610 m (18,405 ft); 13 crossings	Relocation of 6,216 m (20,393 ft); 9 crossings	Relocation of 6,123 m (20,088 ft); 11 crossings	Relocation of 5,880 m (19,291 ft); 13 crossings

Source: MSE-HKM, April 2000; MDT April 2000.

Half-Way Ranch

Impacts to the Half-Way Ranch would be the same under the six evaluated alternatives, because right-of-way requirements would not vary. As shown in Figure 8.11, realigning P-78 would shift the centerline to the west and encroach onto the eastern boundary of the Half-Way Ranch site. The realignment would impact the historic residence and outbuildings and result in the need for 1,384 sq m (14,897 sq ft) of new right-of-way from the Half-Way Ranch site. The drainage/field ditch, some of the cottonwood trees, and some of the nonhistoric structures (the playhouse and tree house) would be impacted as well. The residence would be relocated on the site, along with the impacted nonhistoric structures and the drainage/field ditch if feasible.


SITE BOUNDARY
NEW ROW BOUNDARY
NEW CENTERLINE
WELL
WHITEBIRD CREEK
FLD. DT.
SHED
HOME
FLD. DT.
OLD CENTERLINE
NEW ROW BOUNDARY
BARN
FLD. DT.
HOME
HOME
WHITEBIRD CREEK

Source: MSE-HKM, August 2000.

Figure 8.11: Half-Way Ranch Site Impacts

8.4 AVOIDANCE ALTERNATIVES

Alignment alternatives for this project are limited by the existing land use and terrain within the project corridor. The existing roadway alignment closely parallels Stillwater River and East Rosebud Creek, precluding major alignment shifts to the west. In some locations, the steep terrain precludes shifting the alignment for any substantial length. Along the project corridor it was observed that avoiding one Section 4(f) property in some cases would result in substantial environmental and economic impacts to other sites, exceeding impacts to Section 4(f) property.

In general, adverse impacts caused by reconstructing and relocating P-78 would be minimized by retaining the alignment in the existing highway corridor.

Riverside Inn

The No-Build Alternative would avoid impacts to the Riverside Inn site, however, it would not address the safety problems in the P-78 corridor. Narrowing the roadway at this location would conflict with the project's purpose and need. The steep hillside and the historic Kem-Mulherin irrigation ditch to the east preclude any major alignment shift to the east. The Stillwater River, historic Roadhouse irrigation ditch, and the Riverside Inn structures preclude any major alignment shift to the west.

Lower Stillwater River Historic Irrigation District

The No-Build Alternative would avoid impacts to the Lower Stillwater River Historic Irrigation District; however, it would not address the safety problems in the P-78 corridor. Narrowing the roadway at these ditch locations would conflict with the project's purpose and need. As noted above, alignment alternatives for this project are limited by the existing land use and terrain.

The location of these historic ditches on both sides of the highway in some locations make them difficult to avoid with the design standard for this type of highway.

Half-Way Ranch

The No-Build Alternative would avoid impacts to the Half-Way Ranch site; however, it would not address the safety problems in the P-78 corridor. Narrowing the roadway at this location would conflict with the project's purpose and need. Two alternatives were assessed to avoid the site. One alternative would shift the alignment east of the site, and the other alternative would shift the alignment west of the site.

The alignment east of the site would avoid the Half-Way Ranch site but would impact another residence, barn, and two outbuildings. The right-of-way impacts would be similar; however, 1.2 ha (3.9 ac) less of statewide important farmland would be impacted. A private access road would be obliterated, and three new approaches would need to be constructed to provide access to other parcels. An additional 275 m (902 ft) of Whitebird ditch would need to be relocated, and two water supply wells would be impacted.

The alignment west of the site would avoid the Half-Way Ranch site, but it would be a substantial distance from the present travel way and would be "behind" the site roughly bisecting the parcel. An additional 1.8 ha (4.5 ac) of right-of-way would be required, resulting in impacts to an additional 1.0 ha (2.5 ac) of farmland of statewide importance. This alignment would also split three parcels, with remainders left on both sides of the roadway. In addition, two of the approaches would be greater than 80 m (263 ft) in length, and an additional 265 m (869 ft) of the Whitebird ditch would be relocated.

Although the alternatives described above would avoid the Half-Way Ranch site, there are numerous additional impacts associated with these alignments.

8.5 MEASURES TO MINIMIZE HARM

Riverside Inn

Measures taken to minimize harm at the Riverside Inn site would include a minor horizontal alignment shift of P-78 away from the site and into the hillside to the east. This alignment shift would reduce the right-of-way impacts by 52%, from 1,523 sq m (16,387 sq ft) to 729 sq m (7,844 sq ft). To minimize impacts to the site from the realigned county road that would become a private driveway, the side slopes of this approach road would be reduced from 6:1 to 2:1. The reduction in side slopes would result in avoiding structure 7 (Figure 8-4) to the south of the county road and reducing the construction easement area.

Lower Stillwater River Historic Irrigation District

Measures to minimize harm to the Lower Stillwater River Historic Irrigation District would include narrowing the right-of-way from earlier designs, employing nonstandard slope configurations, and shifting the roadway realignment, thereby reducing the amount of relocations by approximately 610 m (2,000 ft).

The 9.6 m (32 ft) alternative, which is the preferred alternative, would also have less impact than the 10.8 m (36 ft) alternative because it would provide a slight reduction in the length of the individual ditch relocations.

As required by the 1989 “Memorandum of Agreement”(MOA) between the Federal Highway Administration, the Montana Department of Transportation, and the Montana State Historic Preservation Office, the Montana Department of Transportation would perpetuate the impacted historic ditches by relocating them immediately outside the new right-of-way, and the department would keep a record of the existing and new locations of the five historic ditches on as-built project plans, which would be available to researchers. Two other stipulations of the “Memorandum of Agreement” have been completed. One stipulation required the preparation of a researchers’ guide to historic period irrigation systems in Montana. This guide was completed and submitted to the state historic preservation officer in July 1993 for inclusion in a *Montana Historic Preservation Planning Bulletin.* A copy of the text of the guide is included in Appendix C. The other completed stipulation is an archeological inventory and evaluation of two parcels (24ST214 and 24ST213). Based on subsequent cultural resource work, the Montana state historic preservation officer determined that the existing “Memorandum of Agreement” encompasses the Butcher Creek-Rosebud ditch (24ST214) and that the other site (24ST213) was outside the study area and therefore no further work was needed. (See correspondence of July 31, 1989, in Appendix C.)

Half-Way Ranch

Measures to minimize harm at the Half-Way Ranch site would include steepening fill slopes within the site boundary to reduce the right-of-way width. This measure would result in an overall reduction of 546 sq m (5,877 sq ft) of right-of-way on the site. The affected historic buildings at the ranch would be relocated on the site, if feasible. Coordination has been undertaken among the Federal Highway Administration, the Montana Department of Transportation, the State Historic Preservation Office, and the property owner to implement a "Memorandum of Agreement", signed on January 31, 2001, to mitigate adverse impacts and to minimize harm at the site. Mitigation measures of the Half-Way Ranch MOA include the following five stipulations: (1) MDT will prepare all necessary NRHP forms and fabrication of applicable signs in consultation with the SHPO prior to letting of the construction contract, (2) if the property is not placed on the NRHP, MDT shall contact and coordinate with the Historic American Building Survey (HABS) to determine appropriate recordation procedures and ensure that all documentation is completed and is distributed to the proper entities prior to the relocation of the residence on the property; (3) MDT will relocate residence F-1, outbuilding F-2, and Garage F-3, out of the ROW and construction limits with as little alteration as possible, and this relocation will be conducted by a professional mover of historic buildings; (4) New silver maple, cottonwood, and spruce trees will be planted on the site; and (5) If a dispute arises regarding this MOA, FHWA shall seek further comments from the Advisory Council on Historic Preservation if disputes are not deemed resolvable by any consulting party.

8.6 COORDINATION WITH AGENCIES

The Montana State Historic Preservation Office was recently consulted and provided an updated "Cultural Resource Inventory" for the corridor. In a letter of July 23, 1999, the State Historic Preservation Office determined that there would be **no effect** at the Riverside Inn for the Preferred Alternative (see Appendix C).

The Montana State Historic Preservation Office and the Advisory Council on Historic Preservation have been consulted regarding the historic ditch sites of the Lower Stillwater River Historic Irrigation District. Correspondence with these agencies is included in Appendix C. The letter of June 1, 1989, from the State Historic Preservation Office concurred that the relocation of portions of the irrigation ditches would have an **adverse effect** on the Lower Stillwater River Historic Irrigation District (see Appendix C). The 1989 "Memorandum of Agreement" with the Federal Highway Administration, the Montana Department of Transportation, and the Montana State Historic Preservation Office would mitigate the impacts to this historic district. This "Memorandum of Agreement" was accepted by the Advisory Council on Historic Preservation on July 16, 1990. The letter of July 23, 1999, from the State Historic Preservation Office determined that the existing "Memorandum of Agreement" remained adequate for the historic ditches of the Lower Stillwater River Historic Irrigation District (see Appendix C).

The Montana State Historic Preservation Office and the Advisory Council on Historic Preservation have been consulted regarding the Half-Way Ranch site. Correspondence with these agencies has been included in Appendix C. The 2001 "Memorandum of Agreement" between MDT, FHWA, SHPO, and the property owner would mitigate impacts to this property. MDT has identified that the relocation impacts would have an **adverse effect** on the historic Half-Way Ranch. The State Historic Preservation Office is currently reviewing these findings.

8.7 CONCLUDING STATEMENT

The P-78 corridor improvements are needed to improve travel efficiency, to accommodate increases in traffic, and to improve safety. All possible planning to minimize harm has been undertaken for these resources.

APPENDIXES

APPENDIX A: PROJECT CHRONOLOGY

Date	Event	Comments
December 30, 1985	Project letter of intent	Letter sent to 55 agencies.
January 30, 1986	Stillwater Planning Office supports project	Stillwater Planning Office agreed with the project need. Made recommendations concerning irrigation and citizen requested bike path.
January 31, 1986	Fishing access sites identified	Montana Fish Wildlife & Parks begins the identification process of fishing access sites.
July 8, 1987	More fishing access sites identified	Montana Fish Wildlife & Parks continues identifying fishing access sites.
March 23, 1989	Public information meeting	Public information meeting held in Absarokee.
March 31, 1989	Preliminary Draft EA / Section 4(f) Statement	Preliminary draft document sent to FHWA for comment.
June 13, 1989	Draft EA / Section 4(f) Statement	Draft document sent to FHWA.
June 28, 1989	Revised Draft EA / Section 4(f) Statement	Revised draft document sent to FHWA for signature.
June–July 1989	Memorandum of Agreement signed	MOA signed by FHWA, MDT, SHPO. Purpose is to mitigate or avoid impacts to the ditches of the Lower Stillwater River Historic Irrigation District.
July 11, 1989	Draft EA / Section 4(f) Statement approved	FHWA approves draft document for circulation.
August 31, 1989	Legal sufficiency review on Draft EA / Section 4(f) Statement	FHWA sends MDT the legal sufficiency review on the draft document. Letter states that the final EA will need air quality, MOA with ACHP, and fish and game impacts.
September 28, 1989	Public hearing	Formal public hearing on Draft EA / Section 4(f) Statement — 123 people attended, transcript completed.
January 12, 1990	Memorandum	Project is split into two projects due to mass balance location and ease of construction.
June 4, 1990	Petition to governor	Local residents send a petition to Governor Stephens requesting an alternative alignment.
July, 1990	Alternative alignment comparison for Nellie's Corner	HKM completes alternative alignment comparison for Nellie's Corner.
July 16, 1990	MOA accepted by Advisory Council on Historic Preservation	Advisory Council on Historic Preservation accepts MOA among MDT, FHWA, SHPO;
September 18, 1990	Final EA / Section 4(f) Statement	Final document with FONSI sent to FHWA for signature.
September 25, 1990	Memorandum	Memorandum from MDT Environmental with comments on FONSI/4(f).
October 4, 1990	FHWA final EA comments to MDT	FHWA sends their final comments on the Final EA to MDT.
October 24, 1990	Farmland conversion impact rating	Farmland Conversion Impact Rating Form AD-1006 completed by SCS.
April 3, 1991	FHWA writes Herman J. Erie	Comment period on MOA extended.

Date	Event	Comments
April 4, 1991	Memorandum	MDT Environmental requests new LOS/capacity analysis from MDT Traffic.
May 15, 1991	Farmland area concerns	Letter from HKM to MDT on farmland areas losing irrigation from ditch locations.
July 16, 1991	Letter to owners	MDT Environmental writes owners to ditches stating HRA will reevaluate impacts for 106.
December 12, 1991	Memorandum	MDT Environmental requests current computer accident analysis from to MDT Safety.
November 4, 1992	Project becomes EIS	MDT sends letter to all cooperating agencies stating project is now an EIS, not an EA.
December 1, 1992	EPS responds to cooperating agencies letter	EPA responds to cooperating agency request, hesitates on full fledged cooperation.
December 3, 1992	BLM declines to be a cooperating agency	BLM provides comments to MDT and declines to be a cooperating agency.
January 7, 1993	Notice of intent to prepare an EIS	Notice of intent sent to the *Federal Register.*
January 15, 1993	Synopsis of correspondence from property owners	Stillwater County Planning Office summarizes correspondence received from property owners.
January 15, 1993	Scoping meeting letter	Letter to each Public Advisory Committee member about forthcoming scoping meeting and information presentation on project.
January 21, 1993	Public scoping meeting	Meeting held in Absarokee; over 170 comment forms and letters received.
January 21, 1993	Public Advisory Committee Meeting	County Planner: Socioeconomic impacts should be explored. Consider long-term benefits. Use info from EA-Draft 4(f) process as a basis for DEIS. Safety should be the primary concern.
January 26, 1993	Farmland impacts comments	Soil Conservation Service provides comments on farmland impacts.
February 9, 1993	Memorandum	MDT Environmental requests LOS/capacity analysis to MDT Traffic for DEIS.
May 6, 1993	Public scoping meeting	Meeting held in Absarokee; 26 comments received.
May 6, 1993	Public Advisory Committee Meeting	DEIS reviewed, along with responses received after the first public scoping meeting.
August 23, 1993	Governor's letter	Governor Racicot writes Herman J. Erie a letter stating an EIS will be done.
August 25, 1993	FWHA letter	FHWA writes Herman J. Erie a letter stating that an EIS will be prepared.
December 15, 1993	Memorandum	MDT District Engineer memorandum to MDT Environmental summarizing PAC ridge runner alternative.
January 19, 1994	Memorandum	MDT Environmental requests current computer accident analysis to MDT Safety; rcvd 7/38/94.
January 19, 1994	Memorandum	MDT Environmental requests data from MDT Traffic.
January 31, 1994	Categorical exclusion approved	Categorical exclusion approved for advanced right-of-way acquisition.
February 7, 1994	MDT meeting	MDT personnel meet to discuss items necessary to complete the DEIS.

Date	Event	Comments
March 16, 1994	Cooperating agencies	DNRC, MFWP and Montana Department of Health and Environmental Sciences (MDH&ES) requested.
March 24, 1994	Memorandum	MDT Environmental requests water quality/well analysis from MDT Geotechnical.
March 28, 1994	Memorandum	MDT Environmental requests LOS/capacity analysis from to MDT Traffic for DEIS.
April 11, 1994	Cooperating agencies meeting	Meeting for DEIS.
April 11, 1994	DNR&C comments	DNR&C comments on environmental issues on the project.
April 11, 1994	Hazardous waste assessment	MDT Hazardous Waste section completes hazardous waste assessment.
April 13, 1994	Cooperating agencies field review	Field review for DEIS.
April 15, 1994	MDFW&P comments	Comments on environmental issues.
April 25, 1994	Consultant approval	MDT director approves request for visual assessmentt/404b(1) Consultant Contract.
April 25, 1994	Memorandum	MDT Environmental requests wetland avoidance/minimization documentation from MDT Preconstruction, plus information on floodplains, streams, water wells.
May 3, 1994	Public Advisory Committee letter	District sends letter on project status.
May 6, 1994	DNR&C comments	Comments on environmental issues.
May 18, 1994	Noise report	"Traffic Noise Measurement Report" completed by MDT Hazardous Waste section.
May 27, 1994	Pilot well approval	Gary Gillmore gives MDT District approval to drill pilot well to substantiate adequate domestic water supply for EIS.
June 15, 1994	Memorandum	MDT Environmental requests information on floodplains/FEMA from to MDT Preconstruction; rcvd 7/18/94.
June 22, 1994	Memorandum	Memorandum from MDT Hazardous Waste Section on an underground storage tank in Absarokee.
July 7, 1994	USF&WS Letter	USF&WS sends MDT letter about T&E, content needed in biological assessment.
December 19, 1994	Memorandum	MDT Environmental requests from MDT Preconstruction how wetlands are being avoided and if barn roof concept for side slopes is acceptable; rcvd 11/14/95.
January 4, 1995	Corps of Engineers comments	Review comments to MDT on the Section 404(b)(1) evaluation.
September 13, 1995	MDT meeting	MDT personnel discuss status of project and DEIS. District introduces the areas needing redesign; discussion of public involvement with individual landowners.
November 14, 1995	MDT meeting	Follow-up meeting to discuss alignment, width, sidewalks, and speed limits.
February 9, 1996	Consultant approval	MDT Construction Design recommends to MDT Preconstruction to hire MSE-HKM for design.
December 3, 1996	Consultant approval	MDT hires BRW, Inc., to complete EIS.

Date	Event	Comments
February 6, 1997	Project team meeting	MDT personnel meet with HSE-HKM & BRW for kick-off team meeting.
March 10, 1997	Memorandum	MDT Environmental requests updated traffic data from MDT Traffic.
May 9, 1997	Memorandum	MDT Environmental requests update of LOS/capacity analysis from to MDT Traffic; received 7/25/97.
June 30, 1998	Project team meeting	FHWA, MDT, MSE-HKM and BRW personnel meet to discuss project.
August 31, 1998	Revised notice of intent published	Revised notice published in *Federal Register*, updating notice of 1/7/93.
September 1998	Cooperating agencies	MDT distributes letters requesting agencies with jurisdiction or special interest to become cooperating agencies.
September 29 and 30, 1998	Policymaker interviews	One-on-one interviews conducted in Absarokee and Columbus; 21 individuals interviewed.
October 5 and 6, 1998	Policymaker interviews	One-on-one interviews conducted in Absarokee and Columbus; 12 individuals interviewed.
October 14, 1998	USFWS correspondence	USFWS indicates it is not available to be a cooperating agency.
October 19, 1998	DNRC correspondence	DNRC indicates it is not available to be a cooperating agency.
October 21, 1998	MFW&P as cooperating agency	MFW&P agrees to be cooperating agency.
October 22, 1998	BLM communication	BLM declines to be a cooperating agency.
October 22, 1998	US EPA as a cooperating agency	US EPA agrees to be a cooperating agency.
October 23, 1998	MDEQ as a cooperating agency	MDEQ agrees to be a cooperating agency.
October 26, 1998	Newsletter 1	First newsletter mailed. Reintroduces P-78 project, project history, and environmental impact study.
November 4, 1998	Public meeting	Absarokee public scoping.
November 5, 1998	Project team meeting	FHWA, MDT, MSE-HKM, and BRW discuss various components of P-78 project, public meeting comments, prepare for Columbus public meeting, PAC, alternatives, schedule revisions and cooperating agency status.
November 5, 1998	Public meeting	Columbus public scoping meeting.
November 23, 1998	Public Advisory Committee (PAC) letter	Letter thanking all PAC members for their previous work on the project. The PAC helped develop P-78 alternatives and have fulfilled their obligations.
December 8, 1998	Cooperating agency letter	All agencies not heard from regarding becoming a cooperating agency contacted again by letter.
December 9, 1998	US Army Corps of Engineers Letter	Corps of Engineers declines to be a cooperating agency.
January 19, 1999	Small group meeting	Discussion of specific alternatives within Absarokee for the P-78 project and plans of Absarokee Water District.
January 20, 1999	Project team meeting	MDT, MSE-HKM, and BRW discuss potential Section 4 (f) at high school, termini of Absarokee alternative, hazardous material sites, Nellie's Corner alternatives, wetlands, permit issues, and Stillwater Inn.

Date	Event	Comments
February 10, 1999	Small group meeting	Discussion of alternatives within Absarokee and addressing of questions and issues identified at the 1/19/99 meeting. Nomination of a project for Absarokee improvements recommended.
February 11, 1999	Project team meeting	MDT, MSE-HKM, and BRW discuss Nellie's Corner alternatives, Absarokee alternatives, typical section alternatives, potential 4 (f) school site, newsletter, Absarokee small group meetings, public meetings, FHWA coordination, agency scoping meeting, and schedule.
March 9, 1999	Newsletter 2	Second newsletter. Summarizes meetings, coordination, and the status of the environmental process.
April 9, 1999	Project team conference call	MDT, MSE-HKM, and BRW discuss public/agency coordination activities, Absarokee alternatives, typical section alternatives, Nellie's Corner alternatives, and scheduling.
April 12, 1999	Project team conference call	MDT, FHWA, MSE-HKM and BRW discuss Absarokee alternatives, Absarokee typical sections, project schedule, typical sections outside Absarokee, and Nellie's Corner alternatives.
April 20, 1999	Riverside Inn small group meeting	Discussion of alternatives near the Riverside Inn with adjacent property owners.
April 26, 1999	Public meeting	Absarokee public meeting.
April 27, 1999	Public meeting	Columbus public meeting.
April 27, 1999	Cooperating agency meeting	Discussion of providing agencies with information on the status of the P-78 project and field review.
April 28, 1999	Project team meeting	Based on analysis and input from public meetings and cooperating agency meetings, recommendation that Alternatives A, B, and D at Nellie's Corner be carried forward for detailed evaluation.
July 12, 1999	Stillwater County letter	Request of MDT to nominate as a new project the feasibility study of a Columbus bypass separate from the P-78 project.
July 13, 1999	Project team conference call	MDT, FHWA, and MSE-HKM identify Alternative B as the preferred alternative.
July 22, 1999	PDEIS	Preliminary Draft EIS circulated to project team for review.
July 23, 1999	SHPO letter	Concurrence that project will have no effect for Riverside Inn or historic properties in Absarokee, the MOA for six historic ditches remains adequate, and concurrence that 24ST308, 24ST170, and 24ST186 are not eligible for the National Register of Historic Places.
July 30, 1999	Project team conference call	FHWA indicates concerns about the need for analysis of multiple typical section alternatives for the P-78 EIS.
August 4, 1999	Project team meeting	Identification of work tasks required to assess new typical cross-section alternatives.
August 27, 2000	Memorandum	MDT evaluation of level of service for typical cross-section alternatives.
September 3, 1999	Assessment of typical cross-section alternatives	BRW submits assessment of typical cross-section alternatives to project team.

Date	Event	Comments
October 4, 1999	Project team conference call	Assessment of typical cross-section alternatives: 28 ft, 32 ft, 34 ft, 36 ft, 40 ft paved width. MDT and FHWA identify 9.6 m (32 ft) and 10.8 (36 ft) as being carried forward into detailed evaluation.
October 11, 1999	Assessment of climbing lanes	MSE-HKM submits to MDT assessment of climbing lanes north of Absarokee and south of Absarokee.
November 1999	Newsletter 3	Third newsletter presents a brief project history review and discusses cross-section alternatives and alignments considered for Nellie's Corner.
November 9, 1999	Project team meeting	Determination of status of review for climbing lane alternatives and the 10.8 m versus the 9.6 m cross-sections.
December 17, 1999	Review of impacts matrix for climbing lanes	MSE-HKM submits to the project team an impacts matrix for climbing lanes north and south of Absarokee and for the 9.6 m and the 10.8 m Alternatives.
February 17, 2000	Public meeting	Discussion of alternatives for climbing lanes north and south of Absarokee, and cross-section alternatives (9.6 m versus 10.8 m).
March 8, 2000	Project team conference call	MDT, FHWA, and MSE-HKM identify Alternative B with the 9.6 m (32 ft) road width and a modified south climbing lane south of Absarokee as the Preferred Alternative.
March 27, 2000	Reassessment of modified climbing lanes	MSE-HKM submits to MDT reassessment of modified climbing lanes south of Absarokee.
April 21, 2000	PDEIS	Preliminary Draft EIS with additional alternatives circulated to project team for review.
May 12, 2000	Site investigation	SHPO and MDT reassess eligibility of Half-Way Ranch for the National Register of Historic Places.
May 23, 2000	Project team conference call	Discussion of PDEIS comments and revised schedule to accommodate evaluation of NRHP-eligible Half-Way Ranch and Section 4(f) Statement.
May 26, 200	MDT letter to SHPO	MDT submits letter to SHPO requesting concurrence that the Half-Way Ranch is NRHP-eligible.
June 2000	Newsletter	Fourth newsletter presents what took place at the 2/17/2000 public meeting in Absarokee and discussion of climbing lane and road width alternatives.
June 16, 2000	Assessment of design options	MSE-HKM submits to MDT assessment of design options to avoid or minimize impacts at the Half-Way Ranch site, which is NRHP-eligible.
July 12, 2000	Project team conference call	Discussion of potential impacts and mitigation techniques related to the Half-Way Ranch.
August 3, 2000	Site review	MDT site review with property owners of the NRHP-eligible Half-Way Ranch to discuss impacts and mitigation.
August 14, 2000	Letter	SHPO concurs on no adverse effect to the NRHP-eligible Petosa Homestead.
August 24, 2000– November 9, 2000	Cooperating agency review	Cooperating agency review of "Preliminary Draft Environmental Impact Statement"

Date	Event	Comments
October 13, 2000	Project team conference call	Discussion of: the project schedule; limited access of P-78; climbing lane concerns; coordination with the U.S. Army Corps of Engineers; safety analysis; and long-term and emergency maintenance plans.
December 11, 2000	Letter	U.S. Fish and Wildlife Service concurs with the determination of effects on threatened and endangered species.
December 28, 2000	Letter	MDT response to EPA comments on the "Preliminary Draft Environmental Impact Statement
January 2001	Newsletter	Fifth newsletter presents events that occurred since the last June 2000 newsletter. Topics discussed are community input, agency coordination and DEIS status.
January 31, 2001	Half-Way Ranch MOA	MOA signed by FHWA, MDT, SHPO and property owner. The purpose is to mitigate impacts to the Half-Way Ranch.
March 9, 2001	Project team conference call	MDT, FHWA, and BRW, Inc. develop a strategy to respond the FHWA legal comments and to expedite the release of the DEIS.

APPENDIX B: EVALUATION OF TRAVEL AND SAFETY CHARACTERISTICS OF VARIOUS TYPICAL SECTIONS

TRAFFIC SAFETY

While MDT has adopted the 3.6 m (12 ft) travel lane as a minimum standard, the shoulder widths vary among the alternatives considered. Shoulders provide a wide range of functions, including space for drivers to recover temporary loss of control, or room to perform emergency evasive action; a sufficient horizontal sight distance, and a primary clear area of obstruction.

The Bureau of Transportation Statistics summarized results of various studies concerning the correlation between shoulder width and accident occurrence in two reports entitled, *Accident Models for Two-Lane Rural Roads* (1998), and *Highway Geometry and Driver Performance* (1997). Although there is some variation in the findings, there is a common conclusion that wider shoulders correlates with a decrease in accident rates in cases where average annual daily traffic (AADT) is above 2,000 vehicles. These studies showed twice as many injury accidents on roads with shoulder widths of 0.3 to 0.9 m (1.0 ft to 3.0 ft) compared to roads with shoulders of 1.8 m (6 ft). Shoulders between 1.2 m and 1.5 m (4.0 ft and 5.0 ft) were shown to be adequate on roads with good alignment, but shoulders more than 2.4 m (8 ft) were preferred on roads with poor geometrics.

Using a model developed in 1987 and published by the Federal Highway Administration in FHWA/RD-87/094, *Safety Cost-Effectiveness of Incremental Changes in Cross-Section Design, Informational Guide*, December 1987, the various cross sections were analyzed to predict the effect on accident rates for varying traveling lane and shoulder widths. As shown in Table B-1, the model predicts that the related accidents would be reduced with the addition of any shoulder.

Table B–1: Predicted Accident Reductions with Various Shoulder Widths

Roadway	Travel Lane Width	Shoulder Width	Total Roadway Width	Related Accident Reduction*	Total Accident Reduction*
Existing	3.4 m (11 ft)	None	6.7 m (22 ft)	--	--
Improved	3.4 m (11 ft)	None	6.7 m (22 ft)	47.1%	23.6%
Improved	3.6 m (12 ft)	None	7.4 m (24 ft)	53.5%	26.8%
Improved	3.6 m (12 ft)	0.6 m (2 ft)	8.4 m (28 ft)	60.7%	30.4%
Improved	3.6 m (12 ft)	1.2 m (4 ft)	9.6 m (32 ft)	66.8%	33.4%
Improved	3.6 m (12 ft)	1.8 m (6 ft)	10.8 m (36 ft)	72.0%	36.0%
Improved	3.6 m (12 ft)	2.4 m (8 ft)	12.0 m (40 ft)	76.3%	38.2%

Source: FHWA, 1987; modeled by BRW, Inc., 2000.

* Assumed ADT of 3,800.

The accident prediction model is used to estimate the number of accidents that are related to the lane and shoulder widths. These accidents, referred to as related accidents, include: run-off-road fixed object, run-off-road rollover, run-off-road-other, head-on, opposite-direction sideswipe, and same direction sideswipe.

In order to predict the reductions in total accidents caused by improvements to the alignment and widening of the roadway, a relationship between total and related accident is necessary. Based on a relationship reported in the FHWA report, the ratio of related to total accidents was estimated to be 50 percent (or 0.5) based on an ADT of 3,800 and rolling terrain.

When comparing the existing typical section to an improved roadway with a wider travel lane and shoulder widths ranging from 0.6 m (2ft) to 2.4 m (8ft) the model predicts a reduction in total accidents ranging from 26.8 percent to 38.2 percent. The corresponding accident reductions for related accidents is 53.5 percent when comparing the improved alignment with 0.6 m (2ft) shoulders to the existing alignment and a 76.3 percent reduction for the 2.4 m (8 ft) shoulders.

Based on this information, each of the cross section alternatives would provide some level of safety improvement over and above that provided by the geometric improvements; however, the geometric improvements are the major factor in accident reduction.

TRAVEL EFFICIENCY

Table B-2 summarizes MDT's LOS analysis of the various cross section alternatives.

Table B-2: Level of Service (LOS) for Typical Section Alternatives

Typical Section Alternative	2021 LOS	Year 2021 LOS Reached
No Build	D	Unknown*
8.4 m (28 ft)	C**	Unknown*
9.6 m (32 ft)	C	2014
10.8 m (36 ft)	C	2017
12.0 m (40 ft)	C	2017

Source: MDT 1999.

* Data not provided.

** The 8.4 m section reaches LOS D within three years of the design year, or by 2023.

The 8.4 m (28 ft) alternative would not provide sufficient capacity; within three years of the 2021 design year, this alternative would result in an unacceptable LOS D, warranting an upgrade of the roadway. Consequently, this 8.4 m (28 ft) typical section alternative was eliminated from further consideration.

The 9.6 m (32 ft), 10.8 m (36 ft), and the 12.0 m (40 ft) alternatives would provide sufficient capacity and the same acceptable levels of service, which is LOS B for most of the design life and LOS C in later years of the design life. Various iterations of these typical sections were modeled to determine if modifications in the design would improve the LOS to B for later years. It was determined that only a four-lane facility would achieve LOS B throughout the 20-year design life of the project. As noted in Table B-2, the LOS predictions for the 10.8 m (36 ft) and the 12.0 m (40 ft) alternatives are the same.

BICYCLE AND PEDESTRIAN SAFETY

Another criterion relevant to the evaluation of the cross section alternatives was raised during scoping. MDT was requested to consider a bicycle/pedestrian path within the P-78 corridor. These concerns were addressed for Absarokee. For the remainder of the corridor, the provision of a separate bicycle path was not considered reasonable given the public and agency desire to minimize impacts (relocation, farmland, historic, and environmental) from additional right-of-way requirements. The addition of shoulders has the potential to accommodate bicyclists.

A policy statement recently released by the U.S. Department of Transportation (USDOT), entitled "USDOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure," provides design guidance on including bicycle and pedestrian facilities with highway projects. The policy states:

> In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to operate.
>
> Rumble strips are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of 1.2 m (4 ft) in which a bicycle may safely operate. (p. 12)
>
> The decision not to accommodate [bicyclists and pedestrians] should be the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling.
>
> The Program Guidance defers a suggested definition of what constitutes "exceptional circumstances" until this Policy Statement is completed. However, it does offer interim guidance that includes controlled access highways and projects where the cost of accommodating bicyclists and pedestrians is high in relation to the overall project costs and likely level of use by nonmotorized travelers. (p. 10)

According to AASHTO's guidelines, 1.2 m (4 ft) shoulders are sufficient for bike travel. If rumble strips are included in the shoulder, this guide suggests that the rumble strips should be 0.3 m (1 ft) from the travel lane and that the area for bike travel be 1.2 m (4 ft) wide, but outside the rumble strip. Therefore, to accommodate bike travel, with a 0.3 m (1 ft) wide rumble strip that is 0.3 m (1 ft) from the travel lane, a 1.8 m (6 ft) shoulder would be needed.

MDT's design standard for rumble strips in the shoulder is a 15 cm (6 in) offset from the travel lane and a 0.3 m (1 ft) wide rumble strip, which leaves 0.75 m (1.5 ft) usable area in the shoulder for bike travel. MDT considers roads with 1.2 m (4 ft) shoulders adequate for routes used by 50 bicyclists per day, for 10 days out of a month, over three consecutive months; or 20 bicyclists per day over three months. Where significant bicycle usage is documented, MDT would consider reducing the rumble strip offset to a 10 cm (4 in) offset from the shoulder stripe and a 20 cm (8 in) wide rumble strip where the shoulder width is 1.2 m (4 ft) or less. Although the 9.6 m (32 ft) roadway standard would be an improvement over existing facilities and would be safer for bicyclists, the use of a 20 cm (8 in) rumble strip, offset from the travel lane by 10 cm (4 in), would only provide a maximum of a 0.9 m (3 ft) riding surface for bicyclists. However, the existing demand for bicycle travel on this route is limited. Neither the AASHTO guidance nor MDT would consider a 0.6 m (2 ft) shoulder adequate to safely accommodate bicycle traffic on a roadway of this type.

The 10.8 m (36 ft) roadway width would provide a 1.8 m (6 ft) shoulder. This would allow for a 0.3 m (1 ft) rumble strip located 0.3 m (1 ft) off the travel lane and still leave 1.2 m (4 ft) of room on the shoulder for bike travel, as suggested by AASHTO guidance. The 12 m (40 ft) cross section, which includes 2.4 m (8 ft) shoulders, would also accommodate bike travel.

APPENDIX C: CULTURAL RESOURCES

HISTORIC AND CULTURAL RESOURCES SURVEYED

Site #	Name	Description	National Register Recommendation
	Historic Isolate 1[a]	Five wooden wheels with axle	N/A
24ST74	Irrigation Ditch Bridge	Historic Bridge	Ineligible
24ST76	Oliver Hovda House	House	Listed
24ST78	Bridge	Historic Bridge	Ineligible
24ST89	Old Crow Agency (Butcher Creek)	Native American Site	Ineligible
24ST157	Irven Herem Ranch	Homestead	Ineligible
24ST158	Mangus Johnson Ranch	Homestead	Ineligible
24ST159	Arthur Johnson Ranch	Homestead	Ineligible
24ST160	Elmer Piper Ranch	Homestead	Ineligible
24ST161	Clarence Smith Ranch	Homestead	Ineligible
24ST162	Butcher Creek Bridge	Homestead	Ineligible
24ST163	Freelain Runner Homestead	Homestead	Ineligible
24ST164	Riverside Inn	The Former Barn	Eligible
24ST165	The Brinkley House	Residence	Ineligible
24ST166	Half-Way Ranch	Homestead	Eligible
24ST167	Whitebird Creek Bridge	Bridge	Ineligible
24ST168	Merle Penderson Home	Homestead	Ineligible
24ST169	Abandoned Barn & Well	Homestead	Ineligible
24ST170	Joe Hill Burial	Stone Cairn	Ineligible
24ST171	Petosa Homestead/Bare Ranch	Cobblestone House	Eligible
24ST172	White/Weatherson Site	Homestead	Ineligible
24ST174	DeGroot Home	Homestead	Ineligible
24ST175	S.G. Hood Home	Homestead	Ineligible
24ST176	Lee Simonson House	House	Eligible
24ST177	Link/Bertram Home	Residence	Ineligible
24ST178	Odd Fellows Hall	Recreation Hall	Eligible
24ST179	Absarokee Medical Clinic	Clinic	Ineligible
24ST180	Livery Stable Site	Stable	Ineligible
24ST181	Mandeville Agency	Office	Eligible
24ST182	Five Spot Bar Site	Bar	Ineligible
24ST183	Antique Store	Store	Eligible
24ST184	Gold Block	Structure	Eligible
24ST185	Campbell House	House	Eligible
24ST186	Stillwater Garage[b]	Garage	Ineligible
24ST187	Howland Building	Structure	Eligible
24ST188	Senior Citizens Center	Structure	Ineligible
24ST189	Chrome Bar	Bar	Ineligible
24ST190	Cobblestone Garage	Garage	Eligible
24ST191	IGA Building	Structure	Ineligible
24ST192	Stone Commercial Building	Structure	Ineligible
24ST193	Jay Hotel Site	Structure	Ineligible
24ST194	Stokke Building	Structure	Ineligible

Site #	Name	Description	National Register Recommendation
24ST195	Absarokee Civic Center	Structure	Ineligible
24ST196	Congregational Church	Church	Ineligible
24ST197	Flannigan/Solsted House	Residence	Ineligible
24ST198	Mock House	Residence	Ineligible
24ST199	Blackstone/Howland House	House	Eligible
24ST200	Harry C. Borland House	Residence	Ineligible
24ST201	Kelley House	Residence	Ineligible
24ST202	Eggen House	Residence	Ineligible
24ST203	Lundervold House	Residence	Ineligible
24ST204	Crow Agency Ditch[c]	Ditch	Eligible
24ST205	Kem-Mulherin Ditch[c]	Ditch	Eligible
24ST206	Roadhouse Ditch[c]	Ditch	Eligible
24ST207	Whitebird Ditch	Ditch	Ineligible
24ST208	Scott Ditch[c]	Ditch	Eligible
24ST209	Shane Ditch[c]	Ditch	Eligible
24ST210	White Ditch[c]	Ditch	Eligible
24ST214	Butcher Creek-Rosebud Ditch[c]	Ditch	Eligible
24ST308	Weatherson Homestead	Homestead	Ineligible
24ST309	Shubert Residence	Residence	Ineligible
24ST310	Simonsen Homestead	Homestead	Ineligible
24ST311	Simonsen Homestead	Homestead	Ineligible
24ST312	Simonsen Homestead	Homestead	Ineligible
24ST313	Simonsen Homestead	Homestead	Ineligible
24ST314	Simonsen Homestead	Homestead	Ineligible
24ST315	Simonsen Homestead	Homestead	Ineligible
24ST316	Simonsen Homestead	Homestead	Ineligible
24ST317	Simonsen Homestead	Homestead	Ineligible
24ST318	Simonsen Homestead	Homestead	Ineligible
24ST319	Simonsen Homestead	Homestead	Ineligible
24ST320	Simonsen Homestead	Homestead	Ineligible
24ST321	Simonsen Homestead	Homestead	Ineligible
24ST322	Luther Smith Property	Homestead	Ineligible
24ST323	Simonsen Homestead	Homestead	Ineligible

Source: Ethnoscience, "Cultural Resources Report," June 1999; Historical Research Associates, "Cultural Resource Inventory," July 1988; MDT correspondence May 2000.

N/A Not applicable.

a. This item appears to be independent of its location and relocation is a feasible option for its preservation.

b. This site was found eligible for NHRP listing in 1988, but found ineligible for listing in 1999.

c. One of the contributing historic ditches of the Lower Stillwater River Historic Irrigation District.

MEMORANDUM OF AGREEMENT (amended)
COLUMBUS – SOUTH
STILLWATER COUNTY, MONTANA
F-STPP 78-2(5)27
Control No. 0920

WHEREAS the Federal Highway Administration (FHWA) proposes to assist the Montana Department of Transportation (MDT) in funding the Columbus – South highway reconstruction project.

WHEREAS FHWA has determined that the undertaking will have an effect on the Half-Way Ranch (24ST166), a property eligible for inclusion on the National Register of Historic Places, and has consulted with the Montana State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to Section 106 of the National Historic Preservation Act (16 USC 470) and its implementing regulations, "Protection of Historic Properties" (36 CFR 800);

WHEREAS MDT and the property owners participated in the consultation and have been invited to concur in this amended Memorandum of Agreement;

WHEREAS FHWA, the Council, Montana SHPO and the MDT signed a Memorandum of Agreement for the Absarokee – Columbus highway reconstruction project [F 78-2(5)27] in July 16, 1990 that addresses effects to the Lower Stillwater Irrigation District (24ST204 - 24ST210); and

NOW, THEREFORE; FHWA and the Montana SHPO agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

Stipulations

1) Prior to the letting of the construction contract, the MDT will prepare, in consultation with SHPO, a National Register of Historic Place nomination form for the Half-Way Ranch (24ST166). If the property is listed on the National Register, the MDT will submit a request to the National Register Sign Program to prepare a sign describing the history and significance of the Half-Way Ranch. The MDT will pay the costs of fabricating the sign.

2) If the property is denied listing on the National Register of Historic Preservation by the Montana State Review Board or Keeper of the National Register of Historic Places, the MDT shall contact the Historic American Building Survey (HABS) to determine what level and kind of recordation is required for the Half-Way Ranch (24ST166). Unless otherwise agreed to by HABS, MDT shall ensure that all documentation is completed and accepted by HABS prior to relocation of the residence on the property (See Stipulation 3). The MDT shall ensure that copies of this

documentation are provided to SHPO, Stillwater County Historical Society, Carbon County Historical Society, Montana Historical Society, and Special Collections of Montana State University-Bozeman.

3) The MDT will relocate the Residence (F-1), Outbuilding (F-2), and Garage (F-3) outside the Right-of-Way and construction limits of the proposed highway reconstruction project. The buildings will be relocated in such a manner that their alignment and presentation to the roadway is altered as little as possible. The buildings will be moved in accordance with the recommended approaches in *Moving Historic Buildings* (John Obed Curtis, 1979, American Association for State and Local History), and in consultation with the SHPO, by a professional mover who has the capability to move historic buildings properly.

4) The MDT will plant new silver maple and cottonwood trees on the north and south boundaries of the proposed new site boundaries. Also, two spruce trees will be planted between the proposed roadway and the relocated Residence (F-1) at locations to be determined by the property's owners. The age of both varieties of trees will be determined by the MDT's agronomist.

5) If a dispute arises regarding the implementation of this Agreement, FHWA shall consult with the objecting party to resolve the dispute. If any consulting party determines that the dispute cannot be resolved, FHWA shall request the further comments of the Advisory Council on Historic Preservation pursuant to the Council's regulations.

EXECUTION OF THIS MEMORANDUM OF AGREEMENT and implementation of its terms evidences that FHWA has afforded the Council an opportunity to comment on the Columbus – South highway reconstruction project and its affects on historic properties, and that FHWA has taken into account the effect of the Undertaking on historic properties.

Federal Highway Administration

1-31-2001

Date

Mark F. Baumler

Montana State Historic Preservation Office

1/18/2001

Date

Concurring Parties:

Nov 21, 2000

Montana Department of Transportation

Date

Calvin Robin Watkins

Nov. 28- 2000

Calvin and Robin Watkins – property owners

Date

MEMORANDUM OF AGREEMENT
ABSAROKEE - COLUMBUS HIGHWAY PROJECT, STILLWATER COUNTY, MONTANA
F 78-2(5)27

WHEREAS the Federal Highway Administration (FHWA) proposes to assist Montana Department of Highways (MDOH) in funding the Absarokee - Columbus highway project;

WHEREAS FHWA has determined that the undertaking will have an effect on the Lower Stillwater River Historic Irrigation District, Riverside Inn (24ST164), and Cobblestone House (Structure 1 at 24ST171), properties eligible for inclusion on the National Register of Historic Places, and has consulted with the Montana State Historic Preservation Office (SHPO) pursuant to Section 106 of the National Historic Preservation Act (16USC470) and its implementing regulations, "Protection of Historic Properties" (36CFR800);

WHEREAS MDOH participated in the consultation and has been invited to concur in this Memorandum of Agreement;

NOW, THEREFORE, FHWA and Montana SHPO agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

FHWA shall insure that the following measures are carried out:

1. MDOH shall perpetuate the Agency, Shane, Kem-Mulherin, Roadhouse, Scott, and White Irrigation Ditches by relocating them immediately outside new highway right-of-way.

2. MDOH shall keep a record of the existing and new locations of the six ditches on as-built project plans. These plans will be stored by the Department at its Helena Headquarters. They will be made available to any and all researchers who may wish to review the plans.

3. MDOH will prepare a researchers' guide to historic period irrigation systems in Montana which can be incorporated in a "Montana Historic Preservation Planning Bulletin." The report will identify the range, limitations, and locations of records that are housed by the Montana Department of Natural Resources and Conservation (DNRC) and that pertain to historic irrigation. Available information about the six ditches included in the Lower Stillwater River Historic Irrigation District will be provided as examples of the data housed at DNRC. SHPO may elect to incorporate part or all of the guide in its "Preservation Planning Bulletin" which

SHPO will prepare. MDOH will have no obligation to identify other sources of historic information on irrigation systems, such as the records housed at Bureau of Reclamation or Bureau of Indian Affairs offices.

4. MDOH shall archaeologically inventory and evaluate the two unsurveyed parcels on the project that have been identified in the "Documentation of Adverse Effect." If a significant site(s) is discovered, a supplemental report of project effect will be prepared and this Memorandum of Agreement amended, as necessary.

5. If a dispute arises regarding implementation of this Agreement, FHWA shall consult with the objecting part to resolve the dispute. If any consulting party determines that the dispute cannot be resolved, FHWA shall request the further comments of the Council pursuant to the Council's regulations.

Execution of the Memorandum of Agreement by FHWA and the Montana SHPO, its subsequent acceptance by the Advisory Council on Historic Preservation, and implementation of its terms evidence that FHWA has afforded the Council a reasonable opportunity to comment on the Absarokee - Columbus highway project and its effects on historic properties and that FHWA has taken into account the effects of its undertaking on historic properties.

D.C. Lewis — 7-11-89
Federal Highway Administration — (date)

Marcella Sherfy — 6-26-89
Montana State Historic Preservation Office — (date)

Concurring Party:

Stephen C. Kologi — July 8, 1989
Montana Department of Highways — (date)

Accepted:

John M. Fowler — 7/10/90
Advisory Council on Historic Preservation — (date)

MR:cg:2MM

Records Related to the Research and Evaluation of Irrigation Ditches in Montana.

by

Jon Axline

Montana Department of Transportation

Historically, Montana has not advocated the centralized control of its water resources. Instead, it relied on the local (county) administration of the state's water rights. Consequently, until 1939 there were few records of water claimants in Montana. The State required the people who appropriated water to post their claims at the point of diversion of the stream or river. Although the State requested that appropriators register their claims with the county clerk, few chose to do so since it did not invalidate their claim to the water. When adjudication of water rights was necessary, the litigant need only tell the court the date of appropriation and the amount of land irrigated. The appropriation date was most important to settlement of the case (the "First in time, first in right" principle). Because of the Yellowstone Compact with Wyoming in 1935, however, the state increasingly found it necessary to determine vested rights to interstate streams.

Montana's decentralized and haphazard records put the state at a distinct disadvantage when compared to those state's--such as Wyoming--with centralized water rights records. In an attempt to partially rectify the problem without arousing significant opposition from water users, the Montana Legislature initiated the Montana Water Resources Survey in 1939. The purpose of the survey was to collect as much information as possible about the state's irrigation systems, including number of irrigated acres, dates of appropriation and descriptions of the irrigation companies. The Legislature intended the information for use in adjudication cases and as a backhanded and innocuous attempt to centralize the state's water records. The State Engineer's office supervised the project.

State Engineer Fred Buck developed a program to conduct a county-by-county survey of Montana. The resulting directory was intended to be the most complete record possible for irrigation systems in the state. Each county survey (published as a "bulletin") contained detailed maps, a short county history and description of resources and, most importantly, a list of appropriated streams, the amount of water appropriated, acres irrigated and description of the ditch companies. Buck stated in 1949 that the survey's "intention was to provide as much data as possible relative to water rights records of the various counties, as well as to assemble such other information as may be available from all sources having knowledge of these various water rights." (Buck, *Montana Water Resources Survey: Musselshell County*, p. 4).

Buck discovered that few appropriation claims had been filed with the county clerks. What few records existed were not standardized and varied between county clerks. Searches of the existing records revealed little but tabulations of the dates of filing for the appropriators and no information about the amount of land irrigated or the size of the claim. The point of diversion, moreover, was often stated indefinitely with the claimant's property listed simply as "his land." Buck wrote that "A purchaser of a ranch property where he has to depend on irrigation from a stream that is not adjudicated, has no way of determining the validity or priority of his water right." (Buck, *Ibid*, p. 2).

Buck relied heavily on the scant information located at county courthouses, oral informants and adjudication records. "Old-timers" played an important role in the survey since the courthouse records were nearly useless. The result was as comprehensive a record of water rights in Montana as was possible. Each volume of the survey encompassed a single county or, towards the end of the project, group of counties. If the irrigation system was not listed in the Montana Water Survey, Buck and his engineers were unable to gather any information about it. In most cases, the ditches were either long-abandoned or there were no records of them in the county courthouse.

The State Engineer's office published 46 volumes of the Water Resource Survey before the state terminated the project in 1971. Those counties surveyed but not published include Daniels, Sheridan, Roosevelt, Petroleum, Garfield, Prairie and Fergus counties. Only portions of Beaverhead County were surveyed. The field notes for the unpublished surveys are located at the Billings office of the Department of Natural Resources and Conservation (DNRC). Yellowstone County was the first county surveyed by the State Engineer's office in 1943. Carbon County was the only county re-surveyed under the program. The Water Resource Survey bulletins provide the best and most complete information available about irrigation in Montana.

The Montana Water Resource Survey books are located at the DNRC in Helena and their regional office in Billings. They are also located at the Montana Historical Society Library, Montana State Library and at the Montana Department of Transportation headquarters in Helena. The original field notes for the survey are stored at the DNRC's Billings office.

The DNRC was created by the Executive Reorganization Act of 1971. The department provided the centralized services that Montana's irrigators opposed for over a century. The department also assumed the duties of the Montana Water Resources Board and replaced the State Water Conservation Board and State Engineer's office. The DNRC, however, continues to rely heavily on the Water Resources Surveys. It does not maintain records of privately owned ditch systems. Instead, the DNRC keeps records of the state's publicly owned and maintained ditch systems. Irrigation records are housed at the DNRC's Billings

Regional Office.

The Billings DNRC office also maintains a list of irrigation companies, owners and contacts. The list was originally compiled by the Water Resource Survey in the 1960s and has been updated annually since then.

The Secretary of State's Office in Helena maintains a list of privately owned ditches. This office also continuously updates the list.

Other sources of useful information include the United States Census reports, Montana State Experiment Station bulletins, General Land Office survey plats (available at the Montana Historical Society, Bureau of Land Management and Montana Department of State Lands). Since water rights and ditch company stock were treated as part of land transfers, they frequently appear in the deed books, mortgage records and, infrequently, in the probate records located at the county courthouses. Occasionally, county histories provide details about irrigation systems and their owners.

The Montana Department of Transportation's original "As-built" highway construction plans also provides valuable information regarding irrigation ditches. The "As-builts" show the name of the ditch, its original configuration and subsequent modifications of the feature as it was affected by highway construction activities.

Some county Soil Conservation Service offices have files concerning specific ditch systems in their areas. The Stillwater County Soil Conservation Service (SCS) office maintains files of the county's ditches. The files contain the Water Rights Location Record for the individual ditches as well as a list of ensuing modifications to the ditch structures and rechanneling of the ditches themselves. As in the case of the Lower Stillwater Irrigation District, the SCS files are an invaluable source of information on the individual ditch systems. The files are incomplete, however, because ditch owners are not legally required to register their property with the SCS.

A combination of the above records were used to make a Determination of Eligibility for the eight ditch systems that comprise the Lower Stillwater Historic Irrigation District. The district is located between the Fishtail River near Absarokee and the Yellowstone River south of Columbus. Each ditch system in the district is privately owned and is used by a small number of users. The first ditch was constructed in 1875 and carried water to the second Crow Reservation Agency on East Rosebud Creek. Settlers constructed the remaining seven ditch systems after the reservation was reduced in 1883. The newest ditch in the system was built in 1914. The Agency Ditch is the nucleus of the historic district and is individually eligible for the National Register of Historic Places.

The development of the Lower Stillwater Historic Irrigation District coincided with the settlement of the area and has remained a significant factor in its agricultural productivity. The extensive irrigation records for the valley gave the researcher an unusual opportunity to evaluate the historic significant of the irrigation systems and its impact on the lower Stillwater Valley. Ironically, the researcher also relied heavily on the information provided by local landowners--much the same way Fred Buck and his engineers did half a century before.

Rj

serving you with pride

Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

David A. Galt, Director
Judy Martz, Governor

MASTER FILE
COPY

February 2, 2001

Calvin and Robin Watkins
HC 54 Box 38B
Columbus, MT 59019

Subject: F-STPP 78-2(5)27
Columbus – South
Control No. 0920

Dear Calvin and Robin:

Enclosed is the signed and implemented amended Memorandum of Agreement regarding your property. Copies of the agreement have also been forwarded to our Legal Services and Right-of-Way departments as well as Bruce Barrett in the Billings District. With the acquisition of all the necessary signatures, the MDT is committed to fulfilling the stipulations of the agreement. We will be presenting the National Register of Historic Places nomination for the Halfway Ranch to the State Review Board at their spring meeting in Billings. The SHPO office will notify you when the meeting will occur and invite you to participate in it if you wish.

If you have any questions, please contact me at (406) 444-6258 or e-mail at jaxline@state.mt.us.

Jon Axline

Jon Axline, Historian
Environmental Services

Enclosure

cc: Bruce Barrett, Billings District Administrator
Carl Peil, P.E., Preconstruction
Gordon Stockstad, Resources Bureau

Date Recd Preconst 2-5-01

Act	Info	MAIL ROUTE	Attach	Initial
	✓	30 Preconst Engr		
	✓	30 Assistant		
		30 Office [illegible]		
		31 Safety [illegible]		
		32 Road D[illegible]		
		33 Environm[illegible]		
		34 Hydraulics		
		35 [illegible]		
		36 [illegible]		
	✓	38 Consultant [illegible]		
	✓			

Rj
2-6-01

Copy to BRW
" " HKM

2000072101

Montana Department
of Transportation

2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

Marc Racicot, Governor

RECEIVED
AUG 16 2000
ENVIRONMENTAL

Josef
MDT
Columbus -
South

RECEIVED
JUL 20 2000
BY:

CONCUR
MONTANA SHPO
DATE 14Aug2000 SIGNED

July 18, 2000

Dr. Mark Baumler
State Historic Preservation Office
1410 8th Avenue
P.O. Box 201202
Helena, MT 59620-1202

Subject: F-STPP 78-2(5)27
Columbus – South
Control No. 0920

On April 21, 1989, the MDT submitted a Determination of Effect to your office regarding the above highway reconstruction project in Stillwater County. In it, we determined that the proposed project would have No Adverse Effect to Feature 1 of the NRHP-eligible Pasquale Petosa Homestead (24ST171). Feature 1 is a cobblestone residence that was determined eligible under Criterion C. Your office concurred with that determination on June 1, 1989.

In the eleven years since that determination was made, however, there have been some alterations to the proposed plans in the vicinity of 24ST171. Specifically, the proposed centerline would not be shifted as close to the site as originally planned. In 1989, the centerline would have been shifted 155-feet closer to the site at 225-feet (the existing centerline is 380-feet from the residence) while the construction limits would have been 140-feet from the property. In 2000, the proposed centerline would be 329-feet from the property, while the construction limits would be 243-feet from the site. The change in plans was partially made to minimize the effect to the Petosa Homestead and to correct the substandard and dangerous curve just to the northeast of the site. Based on the new information, we have revised our Determination of Effect for the is property.

We have determined that the proposed project would have **No Effect** to the NRHP-eligible Petosa Homestead (24ST171). While the centerline would be shifted closer to the property, the proposed construction limits or right-of-way would not encroach on the existing site boundaries. Indeed, the right-of-way boundary would be 238-feet from the property. There would be no significant change in the setting of the property as a two-lane roadway would be maintained at a substantial distance (329-feet; the edge of pavement would be 313-feet from the old homestead) from the site. There would be no sale or transfer of ownership of the property, nor would it be neglected as a result of the project. Finally, those characteristics that make the property eligible for the NRHP would be perpetuated as the proposed highway

file: MDOT/2000

reconstruction would remain a significant distance from the property and there would be no change in the current function or appearance of the buildings located on it. We request your concurrence.

If you have any questions, please contact me at 444-6258.

Jon Axline

Jon Axline, Historian
Environmental Services

cc: Bruce Barrett, Billings District Administrator
Carl Peil, P.E., Preconstruction Bureau
Terry Yarger, P.E., Engineering Bureau
Gordon Stockstad, Resources Bureau

MDT
Montana Department
of Transportation
[illegible]

RECEIVED
JUN - 5 2000
B.R.W., Inc.

May 26. 2000

Mark Baumler
State Historic Preservation Office
1410 8th Avenue
P.O. Box 201202
Helena, MT 59620-1202

MAS[illegible] FILE

Subject: F-STPP 78-2(5)27
Columbus – South
Control No. 0920

Enclosed is the site form and draft Memorandum of Agreement for a property located within the above project area in Stillwater County. The Half-Way Ranch (24ST166) was originally inventoried and determined ineligible for the National Register of Historic Places in 1988. The original inventory for the property also included the buildings located across from it on Highway 78. That portion of the site was established as a separate property in 1966 and there have been significant changes to it since then. In 1998, residence and immediate outbuildings on the Half-Way Ranch property was purchased by Calvin and Robin Watkins, who restored the residence to much of its original appearance. They also compiled an more exhaustive history of the site than had Historical Research Associates over a decade ago. In May. 2000, we re-inventoried the property to include the restoration work and to assimilate the additional history of it into a revised site form. Based on that review, we have determined that the Half-Way Ranch is eligible for listing on the National Register of Historic Places. We request your concurrence.

The preliminary plans for the MDT's Columbus – South project indicate that the proposed centerline for Montana Highway 78 would be shifted in the direction of the Half-Way Ranch. The proposed centerline would be located 43± feet closer to the property. The proposed centerline would be 49± from the Residence (F-1) and the edge of pavement would be 33± feet from the site. Although the paved portion of the roadway would avoid the property, the southwest end of the residence would be located within the construction limits of the project. The entire feature would be located within the proposed new right-of-way limits. This alignment was chosen because of significant substandard curves to the north and immediately to the south of the property. Because of the constricted terrain at this location, no other alignment appears feasible at this time that would reduce the hazardous nature of the curves.

Based on the preliminary plans, it would appear that the proposed project would have an **Adverse Effect** to the NRHP-eligible Half-Way Ranch (24ST166). The dominant feature, the residence (F-1) would be located within the construction limits of the project and would be located within the proposed new right-of-way boundaries. The attached MOA provides several stipulations that would mitigate the adverse effect to the property. Importantly, Stipulation 2, was suggested by the property owners and agreed to by the MDT if no alternative could be found to avoid the residence. The MDT's Right-of-Way Bureau will be responsible for working out the details of the relocation with the property's owners, Calvin and Robin Watkins. The other stipulations were formulated to document the site in its existing location (HABS), plant new trees on the north and south site boundaries that would eventually grow to the size of the existing cottonwood and spruce trees, and provide documentation that could be used to list the property on the National Register of Historic Places. Please review the enclosed draft MOA and provide us with your comments at your earliest convenience.

If you have any questions, please contact me at 444-6258.

Jon Axline

Jon Axline, Historian
Environmental Services

Enclosures

cc: Bruce Barrett, Billings District Administrator
Carl Peil, P.E., Preconstruction Bureau
Joel Marshik, P.E., Environmental Services
Tom Martin, P.E., Right-of-Way Bureau
Terry Yarger, P.E., Engineering Bureau
Gordon Stockstad, Resources Bureau
Chere Juisto, SHPO
Calvin and Robin Watkins

State Historic Preservation Office
Montana Historical Society
1410 8th Avenue • PO Box 201202 • Helena, MT 59620-1202 • (406) 444-7715 • FAX (406) 444-6575

July 23, 1999

MASTER
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RECEIVED
JUL 26 1999
ENVIRONMENTAL

Jon Axline
MDT Environmental Services
POB 201001
Helena MT 59620-1001

RE: Absarokee - Columbus F78-2(5)27

Jon:

Thank you for requesting our comments on the report updating identification and evaluation efforts for the Absarokee - Columbus project.

We **concur** in your determination that 24ST308, 24ST170 and 24ST186 are **not eligible.**

We agree that Alternative B at the Riverside Inn would have **no effect**. We agree that there will be **no effect** under present plans to the Historic Properties in Absarokee.

We agree that the existing MOA for the six historic ditches remains adequate.

It is clear from the Native American consultation letters and summary of Mr. Pretty On Top's comments that alternative B at Shane Ridge would have the least potential to affect qualities important to the Crow People. It is not clear that alternative A would not have effects though it is apparent that A is preferable, from this perspective, than either C or D (see "...the lower the chosen alternative the better..." - Ethnoscience report summary of Mr. Pretty On Top's comments on page 9.2). Should alternative B not be chosen, I recommend additional consultation with the Crow Cultural Director regarding the potential for effects for A, C, or D. I believe that choice of B would result in a clear No Effect.

Sincerely,

Stan Wilmoth

Stan Wilmoth, Ph.D.
HPO

99072201

Montana Department
of Transportation

MASTER FILE
COPY

July 22, 1999

Mark Baumler
State Historic Preservation Office
1410 8th Avenue
P.O. Box 201202
Helena, MT 59620-1202

Subject: F 78-2(5)27
Absarokee – Columbus
Control No. 0920

Enclosed is the revised and updated cultural resource report for the above project. The original report was submitted to SHPO in July, 1988 and Section 106 clearance received in 1989. A Memorandum of Agreement was implemented on July 16, 1990. Because eleven years had passed since the original report was completed, we requested Ethnoscience to review the report and re-investigate the 20 properties determined eligible in 1990 to see if there had been any changes that might change that eligibility status.

In addition, Ethnoscience conducted a cultural resource survey on four proposed alternates at the north end of the project area (Alts. A – D) and at Riverside Inn approximately two miles north of Absarokee (Alts A and B). The updated 1999 CR survey, this survey also included consultation with the Crow Culture Committee. The consultation process with Crow Culture Committee chairman Burton Pretty on Top is described in Appendix C.

Ethnoscience discovered one previously unrecorded historic site on Alternate B. The Matovich Place (24ST308) is recommended as ineligible for the National Register. We agree with that recommendation and request your concurrence. A possible burial cairn (24ST170) within the APE for the project was destroyed by the construction of a transmission line and access road in 1995. That site no longer qualifies for the National Register. We request your concurrence that the Joe Hill Cairn (24ST170) no longer qualifies for the NRHP. Finally, the Stillwater Garage (24ST186) in Absarokee has been significantly modified and, consequently, no longer qualifies for NRHP eligibility. Again, we request your concurrence.

Two Alternates have been proposed for the Riverside Inn (24ST164). Alternate A was described in the April, 1989 Determination of Effect for this project. Under this alternate, there would be No Adverse Effect to the site; SHPO concurred in 1989. Alternate B would shift the existing centerline slightly to the east (right) and away from the Riverside Inn to allow the reconstruction of a substandard curve just to the north of the property. Although the centerline would remain substantially unchanged at this site, some fill material wold be needed because of the centerline change to the north. The toe of the fill slope would extend approximately 16± feet into the Riverside Inn site. The primary buildings at the site, however, would be 105± feet from the toe of the fill slope. Based on this information in the preliminary plans, we have determined that the proposed Alternate B at the Riverside Inn (24ST164) would have **No Effect** to the property. We request your concurrence.

The preliminary plans indicate that the existing roadway width through Absarokee would remain unchanged and no modification to the 1990 Determination of Effect is necessary. There would still be **No Effect** to the 11 historic properties in Absarokee. Finally, the plans also indicate that the existing MOA regarding the six ditches in the Lower Stillwater Historic Irrigation District (24ST206 - 24ST210) is still adequate and no changes are necessary to the mitigation document.

If you have any questions, please contact me at 444-6258.

Jon Axline

Jon Axline, historian
Environmental Services

Enclosure

cc: Bruce Barrett, Billings District Administrator
Carl Peil, P.E., Preconstruction Bureau
Karl Helvik, P.E., Engineering Services
Gordon Stockstad, Resources Bureau
Burton Pretty on Top, Crow Culture Committee

MDT
Montana Department
of Transportation

2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

Marc Racicot, Governor

C.R.
FILE
COPY

July 1, 1993

Marcella Sherfy
State Historic Preservation Office
102 Broadway
P.O. Box 201202
Helena, MT 59620-1202

Subject: F 78-2(5)27
Columbus - Absarokee
Control No. 0920

Attached is the researcher's guide for historic irrigation ditches as specified in Stipulation 3 of the Columbus - Absarokee Memorandum of Agreement (signed July, 1989). Please make any editorial changes you feel are necessary and include it in a future "Montana Historic Preservation Planning Bulletin."

If you have any questions, please contact Jon Axline at 444-6258.

Edrie Vinson

Edrie L. Vinson, Chief
Environmental & Hazardous Waste Bureau

ELV:JA:D:ENV:32.dlw

Attachment

cc: Roy R. Ventura, Jr., P.E., Billings District Engineer
David S. Johnson, P.E., Preconstruction Bureau
DALE PAULSON, FHWA
BOB CLARK, MONTANA HISTORICAL SOCIETY W/ATTACH.
HAROLD CHAMBERS, STATE LIBRARY "
Richard MOY, DNRC "

**Advisory
Council On
Historic
Preservation**

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simins Street, #401
Golden, Colorado 80401

December 29, 1992

Mr. Frank D. Honeywell
Division Administrator
Federal Highway Administration
301 South Park Street, Room 448
Helena, MT 59626

REF: F 78-2(5)27 Columbus-Absarokee, Control numbers A920 and 920.

Dear Mr. Honeywell:

On December 28, 1992, we received the additional information you submitted regarding the referenced undertaking. This information was submitted with your request for our concurrence that the new information about the Butcher Creek Rosebud Ditch (24ST214) does not merit revisions or amendments to the project Memorandum of Agreement (MOA) executed 7/16/90.

We agree that the Butcher Creek Rosebud Ditch was not specifically identified in the MOA, but may be included under the terms of the MOA by virtue of the fact that it is a contributing element of the Lower Stillwater River Historic Irrigation District. Therefore, we agree that the terms of the MOA apply to the Butcher Creek Rosebud Ditch. As with the other six ditches affected by the project, we anticipate that the Butcher Creek Rosebud Ditch will be relocated outside the new highway right-of-way, MDOH will prepare a record of the existing and new location of the ditch, and that this ditch will be included in MDOH's researcher's guide to historic period irrigation systems.

Thank you for consulting with us on this matter. If you have questions, please contact Alan Stanfill at (303) 231-5320.

Sincerely,

Alan Stanfill

for Claudia Nissley
Director, Western Office
of Review

RECEIVED
JAN 07 1993

U.S.Department
of Transportation
**Federal Highway
Administration**
Montana Division

MONTANA DEPT. OF TRANSPORTATION
RECEIVED
DEC 23 1992

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HELENA, MONTANA
DEC 23 1992
ENVIRONMENTAL BUREAU

301 South Park Street
Room 448
Helena, Montana 59626

December 22, 1992

HPM-MT

Claudia Nissley, Director
Advisory Council on Historic Preservation
730 Simms Street, Suite 450
Golden, CO 80401

Dear Ms. Nissley:

Subject: F 78-2(5)27 Columbus - Absarokee
Control Nos. A920 and 0920

As requested in your correspondence of December 1, 1992, enclosed is the concurrence of the Montana SHPO concerning the validity of the existing irrigation ditch MOA. The Butcher Creek Rosebud Ditch (24ST214) was not included as part of the MOA since it was recorded after the Memorandum had been approved. Enclosed is a copy of SHPO's comments regarding the ditch and the MOA. They state, and we agree, that the existing document encompasses 24ST214 and it need not be rewritten or amended to accommodate the ditch. On December 17, 1992, MDT Historian Jon Axline spoke with Alan Stanfill about 24ST214 and the MOA. Mr. Stanfill agreed with SHPO that the MOA encompassed the Butcher Creek Rosebud Ditch since we are producing a mitigation document (Stipulation 3) that will include all contributing components of the historic district.

Our comments in the October 23, 1992 cover letter to your office constitute FHWA's belief that the MOA is valid.

Based on the additional information, we ask that you again review the documents and request your concurrence that the existing Memorandum of Agreement is legitimate. We also request that you expedite the review since the draft EIS will be completed by January 15, 1993.

If you have any questions, please contact Edrie Vinson at (406)444-7632.

Sincerely,
Original Signed by
D. C. LEWIS
Hank D. Honeywell
Division Administrator

Enclosure

c: MDT - Edrie Vinson
c: SHPO - Marcella Sherfy

State Historic Preservation Office
Montana Historical Society
Mailing Address: 225 North Roberts • Helena, MT 59620-1201
Office Address: 102 Broadway • Helena, MT • (406) 444-7715

C.R.
COP

RECEIVED
OCT 30 1992
ENVIRONMENTAL BUREAU

October 29, 1992

Edrie L. Vinson, Chief
Environmental and Hazardous Waste Bureau
Montana Department of Transportation
2701 Prospect Avenue
Helena, MT 59620-9726

Re: Absarokee to Columbus
F 78-2-(5)27

Dear Edrie:

We concur that the Memorandum of Agreement for the project as originally written and signed appears to be appropriate--even with new information.

We also want to note, so that we aren't confused in the future, that the project as originally designed has been divided into two phrases: Absarokee N & S and Columbus South--and that the MOA applies to both.

Thanks for checking.

Sincerely,

Marcella Sherfy
State Historic Preservation Officer

File: COMP, MDOH, Absarokee-Columbus

Advisory
Council On
Historic
Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

COPY

~~AUG 1 4 1988~~

AUG 1 : 1990

AUG 1 1 19

July 25, 1990

Mr. David C. Miller
Planning & Project Development Engineer
Federal Highway Administration
301 S. Park, Drawer 10056
Helena, MT 59626

REF: Memorandum of Agreement regarding the Absarokee - Columbus Highway Project, Stillwater County, MT

Dear Mr. Miller:

The enclosed Memorandum of Agreement regarding the Absarokee - Columbus Highway Project has been accepted by the Council. This action constitutes the comments of the Council required by Section 106 of the National Historic Preservation Act and the Council's regulations.

The Council appreciates your cooperation in reaching a satisfactory resolution of this matter. Please send copies of the Agreement to the other signatories and retain a copy for your files.

Sincerely,

Claudia Nissley
Director, Western Office
of Project Review

Enclosure

State Historic Preservation Office
Montana Historical Society
Mailing Address: 225 North Roberts • Helena, MT 59620-9990
Office Address: 102 Broadway • Helena, MT • (406) 44

Doc. Record

Act	Info	MAIL ROUTE	Initial
		20	
		20 Eng. Specialties	
		21 Contract Plans	
		22 Loc. Road Design	
		23 Environment	
		24 Hydraulic	
		25 Surfacing Design	
		26 Traffic	
		27 Pub. Hearing	
		28 Photogrammetry	
		29 Consultant Design	
	Filed		

July 31, 1989

Mitzi Rossillon, Archaeologist
Environmental Unit
Department of Highways
2701 Prospect Avenue
Helena, MT 59620

Re: Absarokee - Columbus
F 78-2(5)27

Dear Mitzi:

Thanks for the opportunity to review the additional cultural resource work that was accomplished for the project identified above.

Since 24ST214, the Butcher Creek-Rosebud Ditch, is defined as contributing to the determined eligible Lower Stillwater River Historic Irrigation District, you should not need to amend the existing Memorandum of Agreement or draft a new one. The documentation required by the existing MOA now encompasses this resource; the MOA language appears to be adequate to cover it.

We are more concerned about 24ST213. If the proposed highway project will physically impact the cairns, we strongly recommend that additional testing be accomplished to be certain that the site does not contain burial remains. While we know that the appearance of vandalism would have discouraged Powers from carrying out such testing the first time, their evidence--coupled with the presence of trade beads--seems pretty inconclusive. If there is any potential for buried remains, we believe that it is critical to know that before project construction begins in order to carry out Lloyd Old Coyote's request that reburial occur immediately and in a quiet, respectful manner--without public notice to the tribes or others in the state. If the project's area of potential impact will not encompass the cairn site, no further work appears to be necessary.

Sincerely,

Marcella

Marcella Sherfy
State Historic Preservation Officer

File: COMP, MDOH

State Historic Preservation Office
Montana Historical Society
Mailing Address: 225 North Roberts • Helena, MT 59620-9990
Office Address: 102 Broadway • Helena, MT • (406) 444-7715

June 1, 1989

Ms. Mitzi Rossillon
Archaeologist, Envirormental Unit
Montana Department of Highways
2701 Prospect Avenue
Helena, MT 59620

Re: Absarokee - Columbus
MOA negotiations

Dear Mitzi:

Thank you for sending us your findings of effect and a proposed MOA for the project referenced above. We concur with your finding that the project will have no adverse effect on the Riverside Inn and the Cobblestone Residence. We also concur that relocation of portions of the six irrigation ditches will have an adverse effect on the Stillwater Historic Irrigation District to which they contribute.

We have, however, ruminated a while on the mitigation proposed in the draft agreement. We like the commitment to recording ditch locations before and after project construction as a way to document specific changes that will occur as part of this highway project. However, that action alone has not seemed sufficient mitigation given the size of the irrigation district and the values it represents. We've talked among ourselves about oral history, onsite interpretation, etc., but finally settled on the concept of finding and storing some additional historical information in the Montana Historical Society library. Specifically, I've checked with the Soil Conservation Service in the Billings office. The original mylars compiled for Stillwater County's Water Resources Bulletin are stored there. Prepared from GLO maps, they show ditch systems, roads, the river, etc., and could be reproduced. Hence, we recommend that the Memorandum of Agreement include another stipulation directing MDOH to place duplicates of these mylars with the original HRA reports in the MHS Library. That will place HRA's research materials with a very good map of the district--showing relationships of the ditches to other features--within the reach of researchers. Tim Kulhn in the Billings SCS office (657-2105) is available for more information on mylars.

Please call if you have other ideas.

Sincerely,

Kathy Huppe

Katherine M. Huppe
Historical Survey Reviewer

File: File: MDOH

APPENDIX D: COORDINATION LETTERS

MARCH 3, 1849

United States Department of the Interior

FISH AND WILDLIFE SERVICE
MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

M.44 MDT (MT P-78 Absarokee to Columbus) December 11, 2000

Ms. Andrea Hallman
BRW, Inc.
Seventeenth Street Plaza
1225 17th Street, Suite 200
Denver, Colorado 80202

Dear Ms. Hallman:

This is in response to your letters dated October 16 and December 6, requesting that the US Fish and Wildlife Service (Service) concur with the determination of effects on threatened and endangered species for Montana Department of Transportation's proposed Montana P-78, Absarokee to Columbus project (F 78-2(5)27; Control No. 0920) in Stillwater County, Montana.

The Service believes that the activities associated with the proposed highway reconstruction project as described in the July 23, 1999 Biological Assessment (BA) accompanying your most recent letter, do not have the potential to cause adverse effects to the endangered black-footed ferret (*Mustela nigripes*) or the threatened bald eagle (*Haliaeetus leucocephalus*). Therefore, we concur with your determination that the proposed project will not be likely to adversely affect black-footed ferrets or bald eagles and formal consultation is not required. The Service bases its concurrence on information displayed in the BA, and in particular on the coordination measures that will be implemented as a part of this project to assure that bald eagles are not adversely affected by the proposed activities.

The American peregrine falcon (*Falco peregrinus anatum*) has recovered following restrictions on organochlorine pesticides and successful management activities. Therefore, this species was removed from the Federal List of Endangered and Threatened Wildlife on August 25, 1999. Protection from take and commerce for the peregrine falcon under the Endangered Species Act (Act) was removed upon delisting. However, peregrine falcons are still protected by the Migratory Bird Treaty Act (MBTA). The MBTA and its implementing regulations (50 CFR Parts 20 and 21) prohibit take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). With limited exceptions, take will not be permitted under the MBTA until a management plan developed in cooperation with State wildlife agencies undergoes public review, is approved, finalized, and published in the *Federal Register*. It is not anticipated that the proposed road reconstruction project will affect peregrine falcons.

This concludes informal consultation pursuant to regulations 50 CFR § 402.13 implementing the Act. This project should be re-analyzed if new information reveals effects of the action that may affect threatened or endangered species, if the project is modified in a manner that causes an effect not considered in this consultation, or if the coordination measures identified in the BA are not fully implemented.

If you have questions about this letter or your responsibilities under the Act, please contact Mr. Scott Jackson at (406) 449-5225, ext. 201.

Sincerely,

R. Mark Wilson

R. Mark Wilson
Field Supervisor

Copy to: FWS, Billings Suboffice

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

REPLY TO
ATTENTION OF

November 9, 2000

U.S. Army Corps of Engineers
Billings Regulatory Office
1629 Avenue D, Building A
Billings, Montana 59102
(406) 657-5910
FAX (406) 657-5911

MASTER FILE
COPY

Mr. Terry Yarger
Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena, Montana 59620-1001

RECEIVED
NOV 14 2000
ENVIRONMENTAL

Dear Mr. Yarger:

Reference is made to our recent telephone conversation regarding a review of the Absarokee to Columbus, Preliminary Draft Environmental Impact Assessment (PDEIS).

At this time, my present workload precludes me from conducting any detailed review of the PDEIS. Although I left a voicemail message with Ms. Debra Perkins-Smith of BRW in late September of this year, informing her of such, I regret any inconvenience or confusion this may have caused.

Don't hesitate to contact me if you additional questions or concerns.

Sincerely,

Larry G. Robson

Larry G. Robson
Regulatory Project Manager
Billings Regulatory Office

Post-it® Fax Note 7671	Date 11-18-00	# of pages ▶ 1
To DEB-PERKINS-SMITH	From TERRY YARGER	
Co./Dept. BRW	Co. MDT	
Phone #	Phone #	
Fax #	Fax #	

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
BILLINGS WATER RESOURCES REGIONAL OFFICE

MARC RACICOT, GOVERNOR

AIRPORT INDUSTRIAL PARK
1371 RIMTOP DRIVE

STATE OF MONTANA

(406) 247-4415
(406) 247-4416 (FAX)

BILLINGS, MONTANA 59105-1978

RECEIVED
OCT - 2 2000
B.R.W., Inc

September 26, 2000

BRW
1225 17th Street, Suite 200
Denver, CO 80202

RE: MT P-78-Absarokee to Columbus Draft EIS

Dear Debra:

A temporary water use permit is required for water used during construction of this highway. We recommend an application for the permit is made well ahead of the anticipated use of water. An application can be obtained from the Billings Regional Office. The contact person is Marty Van Cleave, Water Resource Specialist, and there is a required filing fee.

If you have questions or concerns, please feel free to contact either Marty or myself at (406) 247-4415.

Sincerely,

Keith Kerbel

Keith Kerbel
Regional Manager

MASTER FILE COPY

RECEIVED
JUL 1 3 1999
DEPT. OF TRANSPORTATION
BILLINGS DISTRICT
BILLINGS, MONTANA

COUNTY OF STILLWATER
STATE OF MONTANA
STILLWATER COUNTY COMMISSIONERS
BOX 970
COLUMBUS, MONTANA 59019

July 12, 1999

Bruce Barrett, District Administrator
Montana Department of Transportation
PO Box 20437
Billings, MT 59104-0437

Dear Bruce,

We are writing in reference to our previous letter dated May 4, 1999. As discussed recently, we agree that the proposed Columbus bypass described in our letter is a separate project from the P-78 project. The bypass project is north of and outside the P-78 project study area. Furthermore, it is our understanding that the proposed P-78 improvements from Absarokee to Columbus would not preclude the future consideration of a bypass of Columbus.

We are now requesting that MDT nominate as a new project, the feasibility study of a Columbus bypass. As part of the Columbus bypass project, we request that MDT consider a new interchange on I-90 at FAS 306 and an additional bridge crossing of the Yellowstone River.

Sincerely,

BOARD OF COMMISSIONERS
STILLWATER COUNTY

L. Harold Blattie
L. Harold Blattie, Chair

Clifford A. Bare
Clifford A. Bare

Charles E. Egan
Charles E. Egan

LHB/ld

Phone (406) 322-4546 or (406) 322 4392 e-mail Commish@wtp.net FAX (406) 322-4698

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COUNTY OF STILLWATER
STATE OF MONTANA
STILLWATER COUNTY COMMISSIONERS
BOX 970
COLUMBUS, MONTANA 59019

RECEIVED
MAY - 6 1999
MONTANA DEPT. OF TRANSPORTATION
BILLINGS DISTRICT
BILLINGS, MONTANA

May 4, 1999

Mr. Bruce Barrett
District Administrator
424 Morey
PO Box 20437
Billings, MT 59104-0437

Mr. Barrett:

We are encouraged by the work that has been devoted to P78 as the project works its way through the process. This has taken years to get to this point.

Discussions at the meeting in Columbus, April 27, turned attention to option "E". This would provide a direct route to I-90 across the Yellowstone River. This route was dismissed due to the high cost of bridge construction. Many years ago the interchange on FAS 306 at I-90 was not pursued even though the land was purchased at that time. The reasons probably dealt with circumventing the town and not encouraging business in Columbus.

As we look to the future in Stillwater County there are some points of consideration. We are a major recreation area with the weekend camping crowd hitting the routes to mountain camp grounds each weekend. There is high volume traffic that is cumbersome and slow as the more homes, campers and other vehicles traverse the route. Many are site seeing as the journey south and travel at slow rates of speed with ties up the traffic. All of this goes through the town of Columbus and causes congestion at the intersection which crosses the railroad tracks. Possibly, something could be done with the intersection that would lessen the problems for a few minutes during the busy times. Most of these people aren't shopping and have fishing, hiking or mining on their minds.

We are unable to visualize our situation in 5 or 10 years and the impact of traffic. Our traffic counts could increase at the rapid rate, however, SMC has initiated a busing system and now has plans to construct a warehouse in Columbus to receive supplies which will be congregated, reloaded on fewer trucks and shipped to the mine site. The vendor traffic would be reduced considerable when this comes to fruition. Those who are in need to travel to the mine would have a direct route which would not require traveling through Columbus.

The Yellowstone River Bridge was in jeopardy with the high water. Our understanding is that rock will be replaced that will protect the bridge abutment from further erosion. This is bridge number 3 that has been constructed in the Columbus area. The original bridge was located farther upstream and washed out many years ago. A second bridge succumbed to the fierce water flow and the existing bridge was put in place. Some say this could happen again and should this be the case the limited access would be narrowed to Laurel until replacement could be accomplished. The construction of a bridge further up stream would offer insurance should this happen again.

There are some questions about feasibility, length of the bridge at the new location, environmental concerns on the Yellowstone River, natural relocation of the river, effects of the Stillwater River as it enters the Yellowstone as this channel has changed and may wander back to the original location, land availability, effects on Old Highway 10, wetlands, drainage, practicality and other aspects. There was reference to a Montana Code that does not allow construction of roads that may circumvent a town.

We would ask that further attention be paid Option E. We have a group of citizens who are questioning why this would not be a feasible alternative.

Sincerely,
Stillwater County Commission

L. Harold Blattie
L. Harold Blattie, Chair

Clifford A. Bare
Clifford A. Bare

Charles E. Egan
Charles E. Egan

RECEIVED
MAY 2 8 1999
B.R.W., INC.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

REPLY TO
ATTENTION OF

December 9, 1998

Water Resources Branch

Mr. Karl M. Helvik
Engineering Bureau Chief
Environmental Services
Montana Department of Transportation
P. O. Box 201001
Helena, Montana 59620-1001

Dear Mr. Helvik,

This is in reply to your letter of October 8, 1998 requesting that Omaha District reaffirm its earlier consent to be a cooperating agency on the **Montana P-78 (Absarokee to Columbus)** project. The Corps of Engineers will participate in the study process as agreed earlier.

The Montana Regulatory Office in Helena will assist in matters relating to the permit requirements under section 404 of the Clean Water Act, and will attend meetings, when possible. This Office will review draft documents and provide comments regarding their adequacy and completeness for NEPA purposes, including those items needed for a smooth and timely permit review process. Our previous letter (copy attached to your request) contained additional helpful information.

Your point of contact for NEPA compliance issues will be Mr. Dwight Olson, CENWO-ED-HC, telephone (402)221-4628. Mr. Allan Steinle is the Montana Program Manager for the Helena Regulatory Office, and may be reached at (406) 441-1377.

Sincerely,

Candace Thomas

Candace M. Thomas
Chief, Environmental & Economics Section
Water Resources Branch
Engineering Division

DEPARTMENT OF ENVIRONMENTAL QUALITY

MARC RACICOT, GOVERNOR

STATE OF MONTANA

(406) 444-2544

PO BOX 20
HELENA, MONTANA 59620-

MASTER COPY

cc: Bruce Ba
Carl P
BKW

RECEIVED
OCT 26 1998
ENVIRONMENTAL

(406) 444-5263

Received
NOV 12 1998

October 23, 1998

Department of Transportation
Karl M. Helvik, P.E.
Engineering Bureau Chief
Environmental Services
2701 Prospect Avenue
P.O Box 201001
Helena, MT 59620-1001

F 78-2(5)27

Dear Karl:

The Department of Environmental Quality (DEQ) will be glad to assist the Department of Transportation in reviewing the environmental aspects of the Absarokee to Columbus highway project. I will be the DEQ's liaison for this project.

Sincerely,

Tom

Tom Ellerhoff
Administrative Officer

cc: M. Simonich, Director

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 301 S. PARK, DRAWER 10096
HELENA, MONTANA 59626-0096

MASTER FILE
COPY

cc: Carl Peel
Bruce Barre
Debra Perkins-

RECEIVED
OCT 26 1998
ENVIRONMENTAL

Ref: 8MO

October 22, 1998

Mr. Karl M. Helvik, P.E., Engineering Bureau Chief,
Environmental Services,
Montana Dept. of Transportation
2701 Prospect Ave., P.O. Box 201001
Helena, MT 59620-1001

Received
OCT 29 1998
BRW, Denver

Re: F78-2(5)27
Montana P-78
Absarokee to Columbus

Dear Mr. Helvik:

This is in response to your October 8, 1998 request to the Environmental Protection Agency (EPA) to be a cooperating agency for the preparation of an environmental impact statement for the Absarokee to Columbus highway improvement project.

The EPA will agree to be a cooperating agency for preparation of the Absarokee to Columbus EIS, however, it should be understood that EPA's agreement to serve as a Cooperating Agency will not preclude or abridge the obligation of EPA to independently comment on the adequacy of the EIS or the effects upon the environment of the proposed action and its reasonable alternatives pursuant to EPA's obligations under Section 309 of the Clean Air Act. It should also be recognized that resource and budgetary constraints and other program commitments may limit the extent of EPA involvement in the EIS development, but we will try to participate in technical team analyses, reviews, and meetings to the extent resource and budgetary constraints and other program commitments allow. Enclosed is a proposed Cooperating Agency Agreement to clarify and define the responsibilities of EPA and the lead Federal and State Agencies (FHWA and MDT) for the preparation of the EIS.

We are also enclosing our scoping comments for highway projects regarding issues that we believe are significant and should be evaluated in the EIS. Our experience has shown that when environmental concerns are thoroughly evaluated, the EIS is a more meaningful document. We appreciate the opportunity to review this project and provide scoping comments. Thank you for your willingness to consider our comments at this stage of the process, and we hope they will be useful to you.

If you have any questions you may contact Mr. Steve Potts of my staff in Helena at (406) 441-1140 ext. 232.

Sincerely,

John F. Wardell
Director
Montana Office

Enclosures

cc: Cindy Cody, EPA, 8EPR-EP, Denver
Virginia Rose, EPA, 8EPR-EP, Denver
Dale Paulson, FHWA, Helena

ENVIRONMENTAL IMPACT STATEMENT (EIS)
COOPERATING AGENCY AGREEMENT

Highway Project F78-2(5)27,
Montana P-78, Absarokee to Columbus

Between

Federal Highway Administration (FHWA) and Montana Department of Transportation (MDT),
Federal and State Lead Agencies

and

U.S. Environmental Protection Agency (EPA),
A Cooperating Agency

PURPOSE:

This agreement identifies the responsibilities agreed to by the above agencies with respect to the preparation of the Draft and Final Environmental Impact Statement for the Absarokee to Columbus Highway Improvement Project.

Nothing in this Cooperating Agency Agreement shall preclude or abridge the obligation of EPA to independently comment on the adequacy of the EIS or the effects upon the environment of the proposed action and its reasonable alternatives pursuant to EPA's obligations under Section 309 of the Clean Air Act.

EPA RESPONSIBILITIES:

1. EPA will participate in the scoping process as Agency resources allow and will provide technical review and comment during EIS preparation within EPA's area of jurisdiction and expertise as to the adequacy of this EIS to be prepared pursuant to the National Environmental Policy Act (NEPA). EPA will provide comments on the scope of the environmental analysis and the impacts to the environment of the proposed action and its reasonable alternatives.

2. Due to resource and budgetary limitations and other program commitments EPA staff will not write, prepare, or author any portion to the EIS document. EPA staff will participate in technical team analyses, reviews, and meetings to the maximum extent allowed by Agency resource and budgetary constraints, and other program commitments.

FHWA & MDT RESPONSIBILITIES:

1. The FHWA and MDT will forward to EPA all related comments it receives during preparation of the document including those arising out of the scoping process, public meeting and circulation of the EIS's.

2. The FHWA and MDT will provide a reasonable lead time (e.g., 30-45 days) for EPA to attend meetings and review and coordinate its response on documents.

Cooperating Agency Agreement Signatories

__________________________________Authorized Representative

Date

FHWA, Federal Lead Agency

__________________________________Authorized Representative

Date

MDT, State Lead Agency

J.F. Wardell Mr. John F. Wardell, Director, Region VIII Montana Office

Date 10,21,98

U.S. Environmental Protection Agency, Cooperating Agency

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) SCOPING COMMENTS REGARDING HIGHWAY CONSTRUCTION ENVIRONMENTAL IMPACT STATEMENTS

The following comments are designed to provide a scope of issues, consistent with EPA's concerns, that will help in the creation of an environmental impact statement (EIS) for a highway development project. EPA appreciates the effort and resources that are committed to the preparation of documents of this nature and hopes to facilitate the process with these comments.

Each project analysis has its own unique scope, affected environment, past and proposed impacts, and will require its own level of analysis. For this reason, it is not our intent to provide either a checklist or standard format. Instead, we hope to present you with EPA Region VIII's concept of the kinds of information and level of analysis we feel is appropriate for this type of project to effectively facilitate the disclosure of its proposed impacts and mitigations to the public. EPA intends for these concerns to be a basis for the full public disclosure of all foreseeable direct, indirect, and cumulative environmental impacts of a given highway project. Clear, in-depth analysis of all relevant issues is a requirement in the creation of an EIS.

Readability, a logical presentation of information, consistency between sections of the assessment and clarity are important to the reader. Many documents we review have neither a clear and logical Purpose and Need statement nor adequate explanation of why the analysis area boundary was established where it was. Highway projects are generally confined to the narrowly defined impact areas along the roadway. However, potential impacts to biodiversity, wildlife and fish, wetlands, stream drainage patterns, fragmentation and connectivity to other projects, may extend beyond such boundaries. An appropriate analysis area should encompass the potentially affected environment, and should be able to function as appropriate unit of analysis for projecting anticipated impacts and for measuring actual effects.

All activities and associated impacts related to project implementation must be disclosed. Statements made in the assessment should be substantiated either by data and analysis included in the document, or by reference to readily available supporting documents. When referencing documents or data not included in the NEPA document, a summary, matrix or data table displaying the information should be included to ensure the reader understands the quality and type of analysis actually completed. Environmental analysis documents frequently do not reflect the level of analysis and data compilation actually completed. Unless clearly documented, the reviewer is unable to establish whether data exists to support conclusions within the analysis.

If applicable, guiding documents that this analysis is tiered to, such as a programmatic Environmental Impact Statement, must be identified as well as any Standards and Guidelines or any project-specific requirements the controlling document prescribes for the type of proposal being analyzed. Additionally, more specific measures are often developed for individual alternatives to mitigate their particular impacts. These measures, as well as their anticipated effectiveness in accomplishing the planned purpose must also be disclosed.

When issued, EPA will review this EIS in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and the Clean Air Act. Specifically, Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts associated with all federal draft and final EIS's.

Water Resources

Surface Water

Highway construction and completed highway projects can result in increased surface water runoff, stream channel alteration, wetland modification and other water quality related problems. The document should clearly describe water bodies within the analysis area which may be impacted by project activities. Identifying affected watersheds on maps of the various alternatives helps convey their relationship with project activities. The assessment should reveal what data is available and the condition (reliability, gaps in data, etc.) of that information.

The EPA considers the collection of baseline water quality data at the project level important to provide a comparison with projected impacts as well as actual project impacts. Where water quality information for individual water bodies exists, it must be presented. This would include inventories; baseline data information such as temperature, turbidity, the presence of toxic substances; water quality and the existence of any known point or non-point pollution sources or other problems. Other information relevant to the analysis, such as aquatic species habitat and the condition and productivity of that habitat, should also be included.

It is the goal of the Clean Water Act to restore and maintain the chemical, physical and biological integrity of the nation's waters. Existing State Water Quality Standards applicable to the affected water bodies should be presented to provide a basis for determining whether beneficial uses will be protected and water quality standards met. The EIS must clearly demonstrate that project implementation will comply with State Water Quality Standards. State Water Quality Standards establish designated uses for a water body (or water body segment), support the uses with numeric or narrative water quality criteria, and protect the uses with an antidegradation policy and Montana's Nondegradation Policy. The EIS should list the designated uses of any affected waters, and it should fully disclose all water quality impacts on these waters.

The EIS should describe the relationship between surface water quality and biota found in affected waters. The EIS should clearly describe the effect of each alternative on designated uses for area surface waters with particular attention to fisheries spawning and rearing habitat. It should also identify which water quality parameters, if any, are limiting factors to local fisheries under each alternative. This information should identify the extent to which fish habitat could be impaired by road construction activities including effects on stream structure, seasonal and spawning habitats, large organic material supplies, and riparian habitats.

Information regarding specific water resources in the project area may be obtained from state Section 305(b) water quality assessments. For additional water quality information, contact Mr.

Gary Ingman, Chief, Monitoring and Data Management Bureau, MDEQ, at 444-5320.

Nonpoint Source Pollution (Section 319. Clean Water Act)

A discussion of area developments, geology, topography, soils and stream stability in terms of erosion and mass failure potential may be necessary to adequately portray the potential risk to water quality, aquatic habitat and other resources from the implementation of specific alternatives. Section 319 of the Clean Water Act requires that Federal actions be consistent with State Nonpoint Pollution Management Plans. The Federal consistency provisions of Section 319 represent an opportunity for State and Federal agencies to more closely coordinate their activities and cooperate in achieving water quality goals. If a state determines that a Federal project is not consistent with the provisions of the non-point source pollution program, the Federal agency must make efforts to accommodate the State's concerns. Executive Order 12372 provides guidelines for using the State intergovernmental review process for conducting Section 319 federal consistency reviews.

The appropriate State-identified Best Management Practices to reduce potential non-point sources of pollution from this project's proposed activities must be designed into the alternatives under consideration and disclosed. Existing water quality conditions in NEPA documents should reflect the State's water quality assessment. Direct or indirect non-point source water quality effects should be reduced through design and through mitigation measures to ensure consistency with the state's non-point source pollution program. The State contact for Federal consistency and non-point source pollution issues is, Mr. Stuart Lehman at MDEQ in Helena at 444-5319.

The proposed monitoring program to be used for determining effects on water quality and the aquatic environment must be disclosed in the assessment. The design of this program must:

1) ensure State water quality objectives are met,

2) provide a mechanism to initiate additional measures if needed to meet State water quality standards and goals,

3) evaluate the effectiveness of the Best Management Practices utilized in this project,

4) evaluate the accuracy of estimates made in the analysis, and

5) provide a feedback mechanism for future projects.

The following documents are good references for developing such a program:

Monitoring Guidelines to Evaluate Effects of Forestry Activities in the Pacific Northwest and Alaska; Lee H. McDonald, Alan W. Smart and Robert C. Wissmar; May 1991; EPA/910/9-91-001;

Rapid Bioassessment Protocols for use in Streams and Rivers; James A. Plafkin, May 1989. EPA/444/4-89-001.

Montana Forestry BMP's; Extension Publications; July 1991, Montana State University; EB0096.

Storm Water Runoff

Storm water discharges associated with highway construction are an industrial activity according to EPA's Storm Water Regulations (40 CFR 122.6). Highway construction projects must obtain an NPDES storm water permit if construction activities will disturb five or more acres of land. For projects within the jurisdiction of small municipalities (less than 100,000 people), and under five acres, other requirements may apply. Construction activities may be covered by a general NPDES permit rather than an individual permit. If a storm water permit is required, on site notification must be posted, along with a pollution prevention plan.

Normal highway runoff, aside from significant spills of hazardous material, contains contaminants which could affect surface and ground water quality. The EIS should characterize the quality of streams, lakes, and ground water resources in the vicinity of the project as well as the quality of the anticipated highway runoff. Provisions for hazardous waste containment in case of a spill, and means of collection and treatment of storm water runoff should also be included. If there are any questions about storm water permitting activities, contact Nick Bugosh at MDEQ at 444-3927.

Antidegradation/Nondegradation Policy

Activities associated with highway construction projects, particularly when considering the cumulative effects of emergency and scheduled repairs and maintenance, have the potential to degrade water quality. If an antidegradation analysis is required as specified in 40 CFR 131.12 [also see 40 CFR 131.12(a)(2); E.O. 12088 (CWA Section 313); and E.O. 12372 (CWA Section 319)], and/or Nondegradation analysis as specified in ARM 17.30.701-717, they must be included in the document.

These policies were developed to assure that designated surface water uses will not be degraded. Antidegradation/Nondegradation Policies provide protection for surface waters that currently meet Water Quality Standards (Tier 1 waters), currently exceed Water Quality Standards (Tier 2 waters), and/or are considered of outstanding value (Tier 3 waters).

The State determines the "Tier" of a waterbody under this policy, although EPA can provide guidance on determining surface water quality status. The policy's three tiers of protection are:

Tier 1: No activity is allowed which would partially or completely eliminate any existing beneficial use of a waterbody, regardless of whether that use is designated in a state's Water Quality Standards. If a proposed activity would partially or completely eliminate a beneficial use, it must be avoided or adequate preventive measures must be taken to ensure that existing uses and associated surface water quality will be fully maintained.

Tier 2: The quality of surface waters exceeding "fishable/swimmable" levels (i.e., "high quality waters"), shall be maintained and protected unless the following are completed:

(1) A finding that degradation is necessary to accommodate important economic or social development in the area in which the waters are located;

(2) Full satisfaction of all intergovernmental coordination and public participation provisions; and

(3) Assurance that the highest statutory and regulatory requirements and standards for pollutant controls are met.

This provision is intended to provide relief only in extraordinary circumstances where the economic and social need for an activity clearly outweighs the benefit of maintaining surface water quality over that required for "fishable/swimmable" water. The burden of proof on a project proponent for such activity is very high. However, the proposed activity shall not preclude the maintenance of a "fishable/swimming" level of surface water quality.

Tier 3: "High quality waters" which are considered outstanding national resources shall be maintained and protected.

Ground Water

Ground water under a highway construction area may serve as a drinking water supply and/or a recharge source of nearby surface water bodies. Accordingly, contamination from highway construction activities could have an adverse public health or ecological impact on such resources. An assessment of activities and potential contaminants used in the highway project should be conducted to determine risk of the project to ground water. Mitigation measures should be developed to assure that the ground water is adequately protected from the identified risks.

With regard to water supply wells or springs, the Department of Transportation needs to work with State environmental authorities and water purveyors (including private well owners) to identify what part, if any, of the project crosses present or planned water supply recharge areas. Highway authorities should also determine whether the project is located in a delineated Wellhead

Protection Area. Locally mandated wellhead program mitigation measures should be followed to protect the water supplies. The state contact for the Wellhead Protection Program is Joe Meek at MDEQ at 444-4806.

Underground Storage Tanks

EPA considers leaks from Underground Storage Tanks (UST's) a serious threat to human health, soil, and ground water resources. Unidentified UST's containing petroleum and hazardous substances could be encountered during highway construction. Many of these tanks have been abandoned and still contain petroleum residues . If any UST's are found in the proposed right-of-way, Theresa Blazicevich of MDEQ at 444-0493 must be notified.

The EIS should address any known impacts associated with the closure (in situ or removal) of the tanks. For unknown impacts the EIS should address site assessments, initial response (if a leaking tank is discovered), corrective action plans to treat contamination caused by leaking UST's, disposal procedures for the tank, and contaminated soils and ground water.

Hazardous Waste Sites

Highway routes and potential rights of way should be examined for proximity to hazardous waste sites. Projects that located near hazardous waste sites should provide mitigation measures that will safely avoid hydrologic and other disturbances of these sites. Mr. Mike Trombetta of MDEQ at 444-5877 may be contacted as an information source for hazardous waste sites in the area. A commonly used source for identification of known hazardous waste sites is the CERCLIS inventory generated from the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

Wetlands

The document must clearly describe the existing wetlands within the analysis area; their acreage, type and ecological role and how both acreage and function will be protected. Road construction clearing and earthwork generally include sedimentation and hydrologic impacts which at some level may cause changes to surface and subsurface drainage patterns and, ultimately, wetland integrity and function. Executive Order 11990 requires that all Federal Agencies protect wetlands.

For purposes of Clean Water Act section 404 permits where dredge or fill activity is proposed in waters of the United States, all aquatic resource areas, including wetlands, should be clearly identified and assessed in relation to project impacts. Wetlands are one of a number of "Special Aquatic Sites" referenced in the section 404(b)(1) Guidelines. The section 404(b)(1) Guidelines provide the substantive environmental criteria for protecting waters of the U.S. under section 404 of the Clean Water Act. Wetlands are significant environmental resources that provide a wide range of important functions and values. They have experienced severe cumulative losses nationally. For these reasons protection of wetlands and other important aquatic resource habitats is a high EPA priority.

Wetlands in the project area should first be identified and delineated consistent with the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, January 1987, Final Report and its recent guidance on implementation. Delineation should be followed by a functional assessment to determine the extent and importance of existing wetland and aquatic resources. Several options such as the Hydrogeomorphic (HGM) Wetland Assessment Method are available for use in determining wetland and associated aquatic resources functions and their values. Any special features such as rare or unique habitats should receive special attention. Once the wetland functions are defined, the possibilities for mitigating potential impacts can be explored.

Avoidance of wetland losses is a primary requirement of the Section 404(b)(1) guidelines [40 CFR 230.10(a)]. The Corps of Engineers and EPA, through their Mitigation Memorandum of Agreement, state they will ".... strive to avoid adverse impacts and offset unavoidable adverse impacts to existing aquatic resources, and for wetlands, will strive to achieve a goal of no overall net loss of values and functions." Planning and design should seek to avoid impacts wherever possible, to minimize impacts which are unavoidable, and, as a final alternative, to provide adequate compensation for all unavoidable impacts. This will require a thorough evaluation of all less environmentally damaging project alternatives. For non-water dependent activities, such as roads, alternatives to siting in wetlands are presumed to be available unless demonstrated otherwise. Avoidance is required before compensatory mitigation will be considered.

The 404(b)(1) Guidelines and Corps of Engineers and EPA 404 program staff should be consulted for specific guidance on the scope of avoidance and minimization alternatives that need to be addressed. We recommend coordination with the Corps of Engineers, EPA 404 Regulatory Staff, Fish and Wildlife Service, and other state and federal resources agencies when developing alternatives to determine whether impacts to wetlands can be eliminated or reduced. The need to select alternatives which avoid impacts to U.S. waters must be addressed during the 404 permit process. To assure consistency with the 404(b)(1) Guidelines, a thorough analysis of all possible alternatives to avoid and minimize wetland and aquatic resource habitat impacts should be addressed through the NEPA EIS process. These alternatives can include project design changes including roadway alignment reconfiguration, modifications to size and configuration, bridges, construction on pilings as opposed to fill, abandonment of realignment proposals in highly sensitive areas, or use of safety devices to meet road safety objectives.

The document must provide a clear description of anticipated direct, indirect and cumulative adverse impacts to wetlands from all planned activities. In accordance with the Clean Water Act, wetland mitigation strategies, methods and programs should be disclosed in the assessment and included in the overall site mitigation plan. We recommend that a detailed compensatory mitigation plan be developed for unavoidable wetland and aquatic resource impacts (see attached Mitigation Plan Requirements). This mitigation plan should include consideration of both direct, indirect, and cumulative effects. It should contain a statement of goals, a monitoring plan, long-term management/protection objectives and a contingency plan (a commitment to conduct additional work if required to meet the goals of the plan). The mitigation plan should also include best management practices and mitigation measures that will manage stormwater runoff from roadways before it reaches wetlands, streams and other aquatic habitats. In general, wetlands, including mitigation wetlands, should not be used for treatment of stormwater.

We suggest that the Department of Transportation meet with resource agencies, including EPA to discuss mitigation options. To coordinate the wetland and aquatic resource impact aspects of this project, please contact Mr. Dick Blodnick, at (406) 441-1140 ext. 231.

Air Quality

The effects of the various alternatives on air quality must be quantified. Generally, the primary air quality concern with highway construction is the effect of motor vehicle emissions on air quality and their impact on 1) non-attainment areas, 2) Class I and II protection areas and 3) areas where an air quality standard could be violated by increases in emissions due to increased motor vehicle use facilitated by completion of the project. Existing air quality and meteorological monitoring data should be presented, as well as needed data gathering to adequately perform air quality analysis and any monitoring proposed.

The air quality analysis must demonstrate that the proposed alternative would not cause or contribute to any violations of the National Ambient Air Quality Standards, that it will not cause the air quality to degrade by more than any applicable PSD (Prevention of Significant Deterioration) increment, and that it will not cause or contribute to visibility impairment.

The following discussion presents the general criteria by which an EIS dealing with mobile sources is evaluated for air quality impacts. This discussion presents the areas to be considered rather than the details of the analysis. A project with negligible effects on air quality may not need to consider all the points mentioned below:

(1) A description of the existing air quality should be presented, including the study areas designation of attainment or nonattainment of National Ambient Air Quality Standards.

(2) A localized analysis of pollutants particularly carbon monoxide (CO) is needed. In most cases the eight-hour standard of 9 ppm is the controlling standard. However, it is useful to provide both one-hour and eight-hour concentrations. This analysis is required and should be proportional to the scope of the project.

(3) Areawide analysis should be done for CO, PM_{10} (emissions and particulates made airborne from automobile use), and Volatile Organic Compounds as well as any other criteria pollutants or hazardous pollutants which may be affected by the project. This analysis may not be necessary if the project is included in the State Implementation Plan (SIP) emission inventory.

(4) The analysis should include a comparison of the "No Build" and all Build alternatives for existing conditions. worst case conditions, and the design years.

(5) The traffic analysis should show the project's impact on average daily traffic and speeds. The assumed population growth used to project traffic volumes should be identified to assure consistency with the population projections in the SIP.

(6) Construction impacts and appropriate control measures to be taken should be discussed.

(7) Monitoring should be conducted at areas of maximum concentration to which the public may be exposed. Refer to 44 FR 27586 (May 10, 1979) for monitoring guidance.

(8) An appropriate model should be used, based on the project scope. MOBILE 5A is the most recent mobile source emission factor model released by EPA.

(9) A determination of whether the project conforms to the State Implementation Plan is required in Section 176(c) of the Clean Air Act (as amended November 15, 1991).

Section 176(c) of the Clean Air Act

The conformity provisions of the Section 176(c) of the Clean Air Act requires that all Federal actions conform to existing State Implementation Plans (SIP's), and prohibits Federal agencies from taking any action that causes or contributes to a new violation of the NAAQS, increases the frequency or severity of an existing violation, or delays the timely attainment of a standard. The analysis must describe any state or local air quality regulations or SIP requirements covering specific activities occurring as part of the project construction and/or implementation, and how compliance with those regulations or requirements will be achieved. Under section 176(c), the Federal agency responsible for a proposed action is required to determine if its action will conform to the applicable SIP before the final EIS is completed. The final rule on the conformity provision can be found in 40 CFR Parts 51 and 93.

Wildlife Effects

In the case of new highway alignments or widening of existing roads, the EIS should evaluate direct and indirect (induced growth) wildlife effects. Affected environment sections should include current quality and capacity of habitat, usage by wildlife near the proposed project, and known wildlife corridors/trails. Existing wildlife mortality should be disclosed if known. Environmental Consequences sections need to evaluate increased mortality from higher traffic levels, habitat removal, reduced access to available habitat, effects on biodiversity (see Biodiversity below), and estimated reductions in impact from mitigation. The mitigation sections should include analysis of the following:

The extent to which stream crossings can be modified to also serve as wildlife crossings. (Assuming stream crossings coincide with areas where there is wildlife movement or an opportunity to reduce mortality rates). Crossings should be dedicated for wildlife use to reduce wildlife mortality, connect habitat areas, and reduce traffic accidents. Crossings should be of sufficient width, contain minimal dark passages, and employ wing fencing techniques.

Threatened and Endangered Species

If the proposed activities could affect threatened or endangered species, the EIS should include the Biological Assessment and the associated U.S. Fish and Wildlife Service (FWS) Biological Opinion or formal concurrence for the following reasons:

(1) NEPA requires public involvement and full disclosure of all issues upon which a decision is to be made;

(2) The Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA strongly encourage the integration of NEPA requirements with other environmental review and consultation requirements (40 CFR 1502.25); and

(3) The Endangered Species Act (ESA) consultation process can result in the identification of mandatory, reasonable, and prudent alternatives which can significantly affect project implementation.

Both the Biological Assessment and the EIS must disclose and evaluate the potential impacts of the proposed action on listed species. The full disclosure mandate of NEPA suggests that the consultation be instigated as soon as possible. Thus, the final EIS and Record of Decision should not be completed prior to the completion of ESA consultation. Treating the consultation process as a separate parallel process that is not closely involved with the NEPA process represents a risk because during the consultation, FWS could identify additional impacts, new mitigation measures, or changes to the preferred alternative. If these changes have not been evaluated in the final EIS, a supplement to the EIS could be warranted.

Biodiversity

While generally not a major issue of concern for smaller road improvement projects, biodiversity may be a critical consideration for new alignments, major reconstruction or when special habitats (i.e., wetlands, threatened and endangered species habitat) will be affected. The state of the art for this issue is changing rapidly.

Biodiversity is the variety of life. It includes the number, abundance, and distribution of each species. It includes species diversity, gene pool diversity, and ecosystem diversity. The concept of biodiversity also includes the processes of interaction among species. Maintenance of biodiversity can minimize the need for listing species as threatened or endangered.

The scale used for the analysis should be described in the EIS. A landscape scale perspective is generally appropriate unless the presence of biotic species that inhabit a wide range of landscapes indicates a need for a larger scale (e.g., wide ranging predators or neo-tropical birds). Where indicator species are used, they should be representative of discrete specific habitats or conditions. Specifically, the document should address:

(1) The diversity and uniqueness of flora and fauna that exists in the analysis area. A review of local climatic diversity, topography and ecotones may be helpful in identifying local biodiversity. The presence of threatened, endangered or sensitive species; communities that are at the edge of their range; or the identification of "gap" habitats indicate a greater need for analysis than homogenous habitats. Similarly, a discussion of nearby, large, undisturbed habitats that add to local diversity stability (such as wilderness or roadless areas) would be informative.

(2) The effects of the proposed alternative actions on the maintenance of diversity.

(3) The cumulative effects of past projects, proposed and approved future projects on diversity stability, fragmentation, connectivity with adjacent landscapes, and disruption to processes or functions.

Indirect Effects

The Council of Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA state that the environmental consequences section of an EIS should include: "Indirect effects and their significance (40 CFR 1502.16(b))." Indirect effects are defined as "...caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include **growth-inducing effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.**" (40 CFR 1508.9(b)) The CEQ regulations also indicate that the EIS should include the "means to mitigate adverse environmental effects." (40 CFR 1502.16(h)) This provision applies to indirect effects as well as direct effects.

New highway construction that improves traffic flow and eliminates congestion could increase access and contribute to induced residential, commercial, and industrial growth. In many situations, one can argue that this type of growth is an inevitable, natural progression. However, *increased rates of growth* in these areas, caused by a highway project, constitute indirect effects and should be evaluated in the EIS. Induced residential, commercial, and industrial growth can adversely affect water quality, wetlands, and other natural resources. These types of indirect effects and appropriate mitigation measures should be fully disclosed in the EIS.

The following list represents examples of resources that could be affected by increased growth and urbanization induced by the proposed highway improvements:

water quality and hydrology of lakes, streams, and ground water;
floodplains and wetlands;
vegetation and wildlife;
biodiversity;
prime and unique farmlands;
air quality;
transportation;
regional and community growth; and
land use, property values, employment, and tax revenues.

Induced growth can result in reasonably foreseeable adverse effects to surface water quality, habitat, wetlands, and social/economic services. Since the CEQ regulations require an analysis of indirect effects, the best time to identify these effects is now, when there is better opportunity to avoid, minimize or mitigate for them.

Much of the mitigation for indirect effects is subject to regulation by the city/county in which the highway will be constructed. The EIS should serve the function of offering the city/county adequate notice of the foreseeable environmental consequences, thus providing the opportunity to plan and implement corrective measures, if needed, in a timely manner.

The analysis of indirect effects should not rely solely on compliance with existing comprehensive land use plans. Although comprehensive land use plans are an important component of the analysis of indirect effects, compliance with these plans could still result in adverse environmental effects.

The EIS should identify the local land use controls that affect or regulate new development with regard to induced growth. If this analysis occurs before the highway project is completed, the city/county will be in a better position to effectively plan for future growth and develop mitigation measures for the impacts resulting from induced growth.

Cumulative Effects

NEPA requires that cumulative impacts be addressed as a summary of the individual impacts of this and all other "reasonably foreseeable" projects, including activities on private, adjacent land irrespective of what agency or entity has decision-making authority or analysis responsibility. The cumulative, site-specific effects of these projects on the analysis area's environment must be analyzed and disclosed. A common inadequacy of documents is the lack of analysis or disclosure of the sum of individual effects of all projects on the local environment. A summary listing of other projects occurring in the vicinity without the accompanying analysis is insufficient.

Connected actions which result in increased cumulative effects are of concern to the EPA. Some examples are:

o Linked Developments - If the construction of a new road or reconstruction of an existing road will likely facilitate or cause additional developments, the effects of these linked impacts must also be analyzed.

o Maintenance and Debris Disposal - Road standards and design have a major effect on scheduled and unscheduled maintenance needs. The needs for normally scheduled maintenance debris from ditch cleaning, sanding as well as anticipated but unscheduled maintenance, such as debris from slumps, should be analyzed and planned for during the design phase of construction and reconstruction projects. Past practices of expediently sidecasting material over the shoulder, filling depressions and widening shoulders have an adverse effect on wetlands and riparian areas and are inappropriate. Plans for long term normal as well as emergency maintenance programs should be disclosed in the NEPA document and a specific site disposal plan describing proper site development, disposal of debris and timely rehabilitation of completed portion to prevent invasion by noxious or undesirable vegetation should be prepared. Plans for management of roadside vegetation through the use of herbicides also require disclosure.

o Winter maintenance - The EPA is concerned about the proximity of wetlands, riparian areas and streams to many roads. Winter maintenance often results in the introduction of sediment and salt either directly or indirectly to the stream and associated riparian and wetland resources. The impacts of winter maintenance activities are more a matter of a long term indirect and cumulative effects than of one specific incident. Snow plowing subsequent to sanding moves sand and salt off the roadbed to the adjacent ditchline and fill slopes. It then migrates downhill until it is deposited in streams or forms a carpet on gentle ground. When this occurs in a wetland, the area's functional abilities are altered. When winter maintenance may potentially affect wetlands, riparian areas or water quality, the effects of the program must be disclosed in a NEPA document. This should include the steps taken to minimize and mitigate the unavoidable effects on waters of the United States (i.e. sediment traps, reuse of sanding material, maintenance program requirements, etc.) as well as a discussion of the effects themselves.

Road agencies often initiate winter maintenance on roads neither designed nor previously managed as all-weather roads. Therefore, even if winter maintenance is not anticipated at the time the NEPA document is developed, it must still be analyzed. Alternatively, a mechanism may be initiated that would explicitly disallow the practice of winter maintenance until documentation of the effects of such a program and its associated impacts is completed.

Route selection, alignment, road design standards, key topographic features, and the linear nature of roads often result in a road which has a predilection to affect a particular component of the environment. The classic example of this is the road in the bottom of a narrow valley and its effects on the stream and associated riparian and wetland areas and resident wildlife. Construction of long, continuous segments of guardrail and snowplowing may also have unfortunate effects on wildlife. These types of effects must be disclosed.

As stated earlier, this discussion is not intended to serve as an all-inclusive list or a checklist. Instead, we have attempted to present the primary issues that EPA Region VIII considers most relevant for this type of project as well as those items that have occasionally not been sufficiently addressed in similar analyses. Our goal of this discussion is to provide a basis for conducting the project analysis that results in a comprehensive assessment of the environmental effects, adequate public disclosure and ultimately an improved decision-making process for selecting among the project alternatives. We sincerely hope that this will be beneficial to you and would appreciate any comments or questions regarding the issues discussed.

Mitigation

A comprehensive discussion of proposed mitigation for direct, indirect and cumulative impacts is required by the CEQ Regulations for Implementing the Procedural Provisions of NEPA. The CEQ regulations state that an EIS should include the means to mitigate adverse environmental effects (40 CFR 1508.7). Judicial reviews of NEPA cases have supported not only the need for identifying mitigation measures, but for discussing mitigation effectiveness as well. Mitigation effectiveness is determined by using a monitoring procedure designed to compare baseline data with existing conditions.

Monitoring

The EIS should include a discussion of monitoring for each resource category determined to be significant through the scoping process, including fisheries and water quality. A properly designed monitoring plan will demonstrate how well the preferred alternative resolves the identified issues and concerns by measuring the effectiveness of the mitigation measures in controlling or minimizing adverse effects.

The monitoring plan should include types of surveys, location and frequency of sampling, parameters to be monitored, indicator species, budget, procedures for using data or results in project implementation, and availability of results to interested and affected groups.

The EIS should describe the feedback mechanism which can compare baseline data with monitoring results to adjust standard operating procedures, monitoring intensity, and protocol at first detection of adverse effects. Provision of such an adjustment process ensures that mitigation strategies will improve in the future and that unforeseen adverse effects are identified and minimized.

Noise

We recommend that the following information be included in the EIS to describe the existing environment and to evaluate the noise effects of the proposed project and the alternatives.

(1) the existing and anticipated land uses near the project site or route that have a sensitivity to noise and the number of people living near the route;

(2) the existing noise levels adjacent to the proposed alignments;

(3) the predicted noise levels from alternatives;

(4) the noise abatement measures that will be used to reduce noise from the completed project and noise generated during construction including noise walls, building insulation and acquisition;

(5) the number of residences/businesses exceeding noise thresholds for each alternative;

(6) the number of residences/businesses exceeding a 10 dBa increase in noise levels (show on a map); and

(7) the facilities that can not be protected by noise abatement measures and the impact on the occupants.

Mitigation Plan Requirements

Mitigation plans required pursuant to Section 404 shall be prepared by a qualified wetlands professional and shall contain, at a minimum, the following elements:

I. Project Description
- (1) Location of Project
- (2) Brief Summary
- (3) Responsible Parties
- (4) Map Indicating Jurisdictional Area and Area of Proposed Fill
- (5) Habitat Type(s) and System Functions to be Impacted
  - (a) Cowardin Classification
  - (b) Soil Characteristics (e.g., Soil Survey Classification and Series, Organic Content, Structure, Texture, Permeability)
  - (c) Functional Assessment
  - (d) Relationship to Aquatic and Upland Resources within the Watershed
  - (e) Relevant Hydrologic Factors (e.g. Water Depths, Velocity, Hydroperiod)

II. Mitigation Goals and Objectives
- (1) Habitat Type(s) and System Functions to be Created, Restored, or Enhanced
- (2) Relevant Hydrologic Factors (e.g. Water Depths, Velocity, Hydroperiod)
- (3) Temporal Impact/Loss
- (4) Replacement Ratio

III. Success Criteria/Performance Standards
- (1) Target Wildlife/Vegetation Characteristics
  - (a) Wildlife/Vegetation Target Species
  - (b) Wildlife Habitat Attributes
  - (c) Percent Vegetation Cover
  - (d) Species Diversity and Richness
  - (e) Structure/Canopy Stratification
  - (f) Above/Below Ground Biomass
- (2) Target Hydrologic Regime
  - (a) Source(s) of water
  - (b) Discharge Points
  - (c) Water Depths
  - (d) Water Velocity
  - (e) Hydroperiod
  - (f) Area to be Affected
  - (g) Direction(s) of Flow
  - (h) Size of Watershed
- (3) Target Soil Characteristics
  - (a) Organic Content
  - (b) Texture
  - (c) Structure

        - (d) Color
        - (e) Permeability
    - (4) Water Quality Standards (e.g., Heavy Metals, pH, Temperature, Dissolved Oxygen Monitoring)

IV. Proposed Mitigation Site
    - (1) Location and Size of Mitigation Area
    - (2) Habitat Type(s) and System Functions
    - (3) Buffer Area Location and Size
    - (4) Present and Proposed Use of Adjacent Areas
    - (5) Potential Site Constraints

V. Proposed Site Plans
    - (1) Plan View Drawing (0.5' Contours with Specific Spot Elevations)
    - (2) Grading
    - (3) Hydrologic Alterations
    - (4) Existing Seasonal High and Low Surface Water Levels and Groundwater Levels
    - (5) Structure Location and Elevation (e.g. Water Control, Large Organic Debris)
    - (6) Soil Amendments
    - (7) Erosion Control
    - (8) Bank Stabilization
    - (9) Plantings (e.g., Species List, Source, Density, Plant Material Type, Size)
    - (10) Irrigation Schedule
    - (11) Upland Buffer Locations
    - (12) Existing and Proposed Adjacent and Watershed Land Uses
    - (13) Special Maintenance or Protective Features (e.g., Fences, Signs, Conservation Easement Boundaries)
    - (14) Transect and Monitoring Locations

VI. Implementation Schedule

VII. Time Zero Report
    - (1) As-Built Survey
    - (2) Photographic Documentation
    - (3) Alterations/Modifications to Original Site Plan
    - (4) Landscape Contractor Responsibilities (e.g. Fertilization, Irrigation, Plant Replacement)
    - (5) Inspection of Completed Mitigation Site

VIII. Maintenance and Contingency Plans
    - (1) Responsible Parties
    - (2) Funding Mechanism
    - (3) Initiating Procedures

IX. Monitoring Plan
  (1) Performance Criteria (Refer to Section III)
  (2) Monitoring Methods
  (3) Annual Reports (Minimum 5 Years)
  (4) Schedule
  (5) Responsible Parties

RESTORATION EVALUATION PLAN

1. The project will contribute to increased ecosystem functioning within the watershed.

2. The restoration project, once completed, will be self-sustaining, requiring minimum maintenance and other human intervention.

3. The project will support a broad range of functions.

4. The project will contribute to the restoration of historic ecosystem composition and biodiversity.

5. Anticipated watershed land use will not negatively affect system functioning.

United States Department of the Interior

TAKE PRIDE IN AMERICA

BUREAU OF LAND MANAGEMENT
Billings Field Office
810 East Main
Billings, Montana 59105
http://www.mt.blm.gov/bifo/

IN REPLY REFER TO:
4100

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OCT 26 1998
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October 22, 1998

Mr. Karl Helvik
Montana Department of Transportation
P.O. Box 201001
Helena, MT 59620-1001

Dear Mr. Helvik:

This letter is in response to your request for BLM to serve as a cooperating agency on F 78-2(5)27, the road from Absarokee to Columbus.

Land administered by BLM along this route is extremely limited. Therefore, we would prefer not to be a cooperating agency on this project; however, if we can help by providing information for the EIS please contact us.

Sincerely,

David Jaynes

David C. Jaynes
Assistant Field Manager

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OCT 19 1998
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DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
BILLINGS WATER RESOURCES REGIONAL OFFICE

MARC RACICOT, GOVERNOR

AIRPORT INDUSTRIAL PA
1371 RIMTOP DR

STATE OF MONTANA

(406) 247-4415
(406) 247-4416 (FAX)

BILLINGS, MONTANA 59105-1

Montana Department of Transportation
2701 Prospect Avenue
Helena, MT 59620-1001

Attention: Karl M. Helvik, P.E.

Subject: F78-(5)27
Montana P-78 (Absarokee to Columbus)
(P.M.S. C#9020)

The Montana Department of Natural Resources and Conservation (DNRC) would like to reaffirm its interest as a Cooperating Agent on this proposed project. We will supply any information available to assist in preparation of the **Environmental Impact Statement** (EIS) for this project and will appreciate the opportunity to review it upon completion.

As stated in an earlier correspondence, the DNRC does not have any State projects in the area of the Stillwater Basin. Some concerns have been raised by the local water users and we would appreciate being kept informed on the project so that we can monitor the affects to the water supply systems in the Basin.

Thank you for the opportunity to be involved and comment. We will be in touch as necessary.

Sincerely,

Keith D. Kerbel
Regional Manager
Billings Water Resources Regional Office

Montana Fish, Wildlife & Parks

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OCT 23 1998

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October 21, 1998

1420 E 6th Avenue
PO Box 200701
Helena, MT 59620-0701

Karl Helvick, P.E., Chief
Engineering Bureau, Environmental Services
Montana Department of Transportation
2701 Prospect Ave.
PO Box 201001
Helena, MT 59620-1001

Dear Karl:

I am responding to your request for Fish, Wildlife and Parks to serve as a cooperating agency relative to the Absorokee to Columbus project. We will cooperate to the best of our ability to provide fish and wildlife information that is present in our files and to suggest ways to minimize impacts to fish and wildlife caused by the project.

Jim Darling the Regional Fishery Manager in Billings and Mike Poore is the fishery biologist in Columbus. Charlie Eustace is the Regional Wildlife Manager in Billings. Please coordinate through Ken Chrest (227-0130). Ken is a consultant who coordinates our Stream Protection Act responsibilities.

As I mentioned in my letter of April 18, 1994, it will be necessary for us to limit our involvement to providing information and reviewing drafts of the MEPA document.

Sincerely,

Glenn R. Phillips, Chief
Habitat Protection Bureau
Fisheries Division

CC: Jim Darling
Ken Chrest

United States Department of the Interior

FISH AND WILDLIFE SERVICE
MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MT 59601
PHONE (406) 449-5225, FAX (406) 449-5339

MAS
CO

M.44 Montana P-78
(Absarokee to Columbus)

October 14, 1998

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OCT 16 1998
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Karl M. Helvik, P.E.
Engineering Bureau Chief
Environmental Services
Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena, Mt 59620-1001

Dear Mr. Helvik:

This letter is in response to your October 8 request that the Fish and Wildlife Service (Service) be a Cooperating Agency for the preparation of an Environmental Impact Statement for the Absarokee to Columbus (P.M.S. C#0920) highway reconstruction project in Stillwater County, Montana. Due to severe staff limitations and other high work-load priorities, I regrettably must inform you that we cannot participate as a Cooperating Agency. Without staff available, we cannot commit to participate on Interdisciplinary Teams, write portions of the NEPA document, or provide technical assistance and technical review and critique of draft NEPA documents.

The Service intends, however, to meet our regulatory and statutory responsibilities that may arise through the environmental review of this project with respect to endangered and threatened species. This would include the preparation of a species list to identify-listed species that may occur in the project area, review of a biological assessment, and conducting formal consultation with the Federal Highway Administration on the project if required.

We would appreciate remaining on your mailing list for this project so that we can monitor the project and thus be in a better position to share information if/when required, or should a change in our staffing dilemma allow for greater participation.

Sincerely,

Kemper M. McMaster
Field Supervisor
Montana Field Office

cc: GARD, MT/WY/ND/SD, FWS, Denver, CO
PARD-ES, FWS, Denver, CO
Dale W. Paulson, Program Development Engineer - FHWA, Helena

APPENDIX E: FARMLAND CONVERSION IMPACT RATING (AD – 1006)

PART I (To be completed by Federal Agency)	Date of Land Evaluation Request 7/21/99
Name of Project: Montana P-78 (Absarokee to Columbus)	Federal Agency Involved USDoT - Federal Highway Administration
Proposed Land Use Roadway Right-of-Way	Stillwater County, Montana
PART II (To be completed by SCS)	Date Request Received by SCS

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this farm.)	Yes ☐ No ☐	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land in Govt. Jurisdiction Acres: %		Amount of Farmland as Defined in FPPA Acres:
Name of Land Evaluation System Used	Name of Local Site Assessment System		Date Land Evaluation Returned by SCS

PART III (To be completed by Federal Agency)		Alternate Site Rating			
		No Build	Build "A"	Build "B"	Build "D"
A. Total Acres to be converted directly		0.0	202.6	199.4	202.1
B. Total Acres to be converted indirectly		0.0	0.0	0.0	0.0
C. Total Acres in Site		0.0	202.6	199.4	202.1
PART IV (To be completed by SCS) Land Evaluation Information					
A. Total Acres Prime and Unique Farmland					
B. Total Acres Statewide and Local Important Farmland					
C. Percentage of Farmland in County or Local Govt., unit to be converted					
D. Percentage of farmland in Govt. Jurisdiction with same or higher relative value.					
PART V (To be completed by SCS) Land Evaluation Criterion Relative Value of Farmland to be converted (Scale of 0 to 100 Points)					
PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Max. Pts.				
1. Area Nonurban Use	15	12	12	12	12
2. Perimeter in Nonurban Use	10	9	9	9	9
3. Percent of Site Being Farmed	20	15	15	18	15
4. Protection Provided by State and Local Govt.	20	0	0	0	0
5. Distance from Urban Builtup Area	N/A	N/A	N/A	N/A	N/A
6. Distance to Urban Support Services	N/A	N/A	N/A	N/A	N/A
7. Size of present farm unit compared to average	10	10	10	10	10
8. Creation of nonfarmable farmland	25	0	10	12	8
9. Availability of farm support services	5	5	5	5	5
10. On-farm investments	20	0	18	18	20
11. Effects of conversion on farm support services	25	0	0	0	0
12. Compatibility with existing agricultural use	10	0	0	0	0
TOTAL SITE ASSESSMENT POINTS	160	41	79	84	79
PART VII (To be completed by Federal Agency)					
Relative value of farmland (From Part V)	100				
Total Site Assessment (From Part VI above or a local site assessment)	160				
TOTAL POINTS (Total of above 2 lines)	260				

Site Selected:	Date of Selection	Was a Local Site Assessment Used? Yes ☐ No ☐

Reason for Selection:

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 - Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy A (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 - Originator will send copies A, B and C, together with maps indicating locations of site(s), to the Soil Conservation Service (SCS) local field office and retain copy D for their files. (Note: SCS has a field office in most counties in the US. The field office is usually located in the county seat. A list of field office locations are available from the SCS State Conservationist in each state).

Step 3 - SCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed proj contains prime, unique, statewide or local important farmland.

Step 4 - In cases where farmland covered by the FPPA will be converted by the proposed project, SCS field offices will complete Parts II, IV and V of the form.

Step 5 - SCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for SCS records).

Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 - The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTION FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres to be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type projects such as transportation, powerline and flooded control, criteria #5 and #6 will not apply and will be weighted zero, however, criterion #8 will be weighted a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 13 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points", where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site A maximum is 200 point and alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site "A."}$$

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APPENDIX F: SECTION 404 PERMIT EVALUATION

APPLICANT: Montana Department of Transportation

PROJECT: Highway P-78 Absarokee to Columbus Improvement Project

I. INTRODUCTION

The 404 (b) (1) Guidelines, found in 40 CFR 230, are the substantive environmental criteria in light of which all proposed discharges of dredged or fill material under Section 404 of the Clean Water Act are evaluated. Central to the 404 (b) (1) review is the precept that no discharge of dredged or fill material should be permitted if unacceptable adverse effects will results to the aquatic ecosystem.

Compliance with the Guidelines is determined by reviewing the proposed discharge relative to four restrictions found in Subpart B, Paragraph 230.10. These restrictions state that:

a) No discharge shall be permitted if there is a practicable alternative which would have less adverse impact on the aquatic ecosystem;

b) No discharge shall be permitted if it violates state water quality standards, violates toxic effluent standards or prohibitions under Section 307 of Act, or jeopardizes the continued existence of threatened or endangered species as identified under the Endangered Species Act of 1973;

c) No discharge shall be permitted which will cause or contribute to the significant degradation of waters of the United States;

d) No discharge shall be permitted unless appropriate and practicable steps have been taken to minimize potential adverse impacts to the aquatic ecosystem.

The Guidelines thus set forth the principle that avoidance of adverse impacts to the aquatic ecosystem is the highest priority and, for those adverse impacts which cannot be avoided, minimization is required. Finally, mitigation may be required to offset remaining adverse impacts and bring a proposed project into compliance with the Guidelines.

The factual determinations used to assess compliance with the four restrictions are found in Paragraph 230.11 of Subpart B. Subparts C-F identify specific chemical, physical and biological effects and impacts which must be considered in making the factual determinations. All are embodied in the following review.

II. PROJECT DESCRIPTION

A. Location

Montana Highway P-78 is located in the south-central portion of the state in Carbon and Stillwater Counties. The project corridor is located entirely in Stillwater County.

Throughout this Section 404 (b) (1) evaluation, it is assumed that 9.6 m (32 ft) Alternative B is the preferred alternative (refer to Chapter 2 Alternatives of the Draft Environmental Impact Statement). The data for the wetland impacts and other environmental data in this document reflect the preferred alternative.

Refer to the Draft Environmental Impact Statement (DEIS) dated April 21, 2000, and Biological Resource Report (BRR) dated July 23, 1999 for specific information regarding this project, environmental data, and maps and photographs of the project area.

B. General Description

Montana Highway P-78 connects Red Lodge, the county seat of Carbon County, with Columbus, the county seat of Stillwater County. The proposed construction involves improving that portion of the highway from Columbus to S419 south of Absarokee, a distance of 25.7 kilometers (16.0 miles). Through this area the highway follows the Stillwater River Valley, an agricultural area with an increasing population. The highway is an important element contributing to the local and regional economy, which is heavily oriented toward mining and recreation in addition to agriculture.

C. Authority and Purpose

The existing highway is a narrow, deteriorating, two-lane road originally constructed in 1935 and improved in 1945. The general alignment is characterized by numerous sharp curves and rolling grades. Many areas along the highway do not meet minimum design standards for primary highways, a fact that produces an accident rate almost four times the statewide average. The proposed work is intended to provide a modern highway that is safer and more capable of handling anticipated traffic demands than the current facility. For a more complete discussion of purpose and need refer to the Draft Environmental Impact Statement (DEIS), Chapter 1.

D. General Description of Dredged and Fill Materials

1. General Characteristics of the Material.

Completion of the proposed work will require the placement of fill materials into both streams and wetlands. Fills will be necessary for highway widening, highway relocation, channel changes, bridge construction, temporary crossings and erosion protection. Different types of fill materials will be used including concrete, riprap, aggregates and earth.

2. Quantities of Fill Materials.

Project completion will require the placement of fill material into Butcher Creek, Beaver Creek, Whitebird Creek, and Shane Creek. At Butcher Creek (RP 30.2) a new bridge will be constructed. Most of the construction work will be above the ordinary high water mark (OHW) but the placement of 1,420 cubic meters (1,857 cubic yards) of riprap below OHW will be necessary for minor channel shaping and realignment. At Shane Creek (RP 43.6+) 140 cubic meters (183 cubic yards) of riprap will be placed below OHW. At Whitebird Creek (RP 39.5) 170 cubic meters (222.4 cubic yards) of riprap below OHW will be necessary. At Beaver Creek (RP 34.9) a new bridge will be constructed and 255 cubic meters (333.5 cubic yards) of riprap will be placed below OHW for a stream channel change. An additional 245 cubic meters (320.4 cubic yards) of "unclassified" excavated material will be placed in Beaver Creek for a channel relocation.

3. Source of the Fill Material.

All fill material will be obtained from either commercial sources or from the immediate project area and will be free of contaminants. Additionally, contractors will be required to follow the stipulations of Article 107.11 "Environmental Protection" of the Montana 1995 *Standard Specifications for Road and Bridge Construction.* This will further assure that no contaminants are introduced into Waters of the United States through fill placement and associated contraction.

E. Description of the Proposed Discharge Sites

1. Location of the Sites.

The locations of streams to be directly impacted by the proposed work are as follows:

Butcher Creek—Reference Post (RP) [Milepost (MP)] 30.2
Beaver Creek—RP (MP) 34.9
Mexican Joe Creek—RP (MP) 37.3
Whitebird Creek—RP (MP) 39.5
Joe Hill Creek—RP (MP) 42.1
Shane Creek—RP (MP) 43.6

In addition, the Stillwater River parallels Highway P-78 for most of the project length. East Rosebud Creek and Rosebud Creek parallel the highway south of Absarokee. These streams will not be directly impacted by the proposed work.

Wetland fills will also occur at various locations along the entire project length. The Biological resource Report (BRR) identified 21 jurisdictional wetland sites within the study area. Of these 21 wetland sites, wetland numbers 7, 11, 12, 13, 14, 15, and 19 were not impacted by the preferred alternative and are therefore not shown on the *Individual Wetland Impacts* table below.

2. Size of the Wetland Sites.

Impacts at individual wetland sites range in size from 0.002 ha (0.004 ac) to 0.298 ha (0.74 acres). This project is going to impact a total of 0.931 hectares (2.301 acres) of wetlands. Stream impacts will be largely limited to the right-of-way except where channel changes will occur.

Individual Wetland Impacts for the Preferred Alternative (9.6 m (32 ft) Alternative B)

Wetland DEIS Number	Wetland BRR Number	Hectares	Acres
1	12R	0.002	0.005
2	13L	0.005	0.01
3	15L	0.005	0.01
3	15R	0.003	0.01
4	22L	0.019	0.05
5	23R	0.298	0.74
6	40L	0.016	0.04
8	93L	0.191	0.47
9	230L	0.015	0.04
10	247L	0.030	0.07
16	252L	0.085	0.21
17	253R	0.044	0.11
18	254L	0.013	0.03
20	269R	0.035	0.09
20	269L	0.019	0.05
21	270R	0.151	0.37
Total	Total	0.931	2.301

*Numbers may vary due to rounding.

3. Types of Aquatic Resources.

All streams directly impacted by the proposed work, except Butcher Creek, are small and vary in width from 0.6 – 1.5 m (2 – 5 ft). Butcher Creek is somewhat larger, approximately 4.6 m (15 ft) wide at the existing highway crossing. Depths of the streams vary but are usually not greater than 0.6 m (2 ft). Stream beds are commonly composed of silt and gravel with some cobble. These streams are of limited length and carry runoff and irrigation return water from higher elevations east of the highway to the Stillwater River on the west.

There are several wetland types in the project area, the most common type being the riparian wetland. This type of wetland is found along stream corridors throughout the project length. Perhaps the best examples are found south of Absarokee along East Rosebud Creek. These riparian wetlands typically support mature cottonwood and aspen growth with understories of willow, sedge and grass. These wetlands provide wildlife habitat although the quality is often diminished by grazing. This is particularly true of the riparian wetlands along the streams in the central and northern portions of the project area. Project area riparian wetlands have also been found to provide important nutrient retention and general food chain support values.

There are a number of cattail marshes in the project area. The highest quality cattail marsh is found at the northern end of the project just south of the Yellowstone River. The marsh appears to be an old oxbow of the Stillwater River and is over 0.4 ha (1 ac) in size. It, like the other marshes, is characterized by dense growths of cattails, which sometimes give way to sedges and bulrushes as elevation increases. Open water is typical of marshes although they may become dry as summer progresses. Marshes in the project area provide valuable wildlife habitat for waterfowl, game birds and song birds. They have also been found to have relatively high sediment control, nutrient retention and flood water storage values.

4. Timing and Duration of the Discharge.

Construction is scheduled to occur between April 1 and November 30 although this schedule may be modified to accommodate such things as weather, delays and specific environmental concerns. Discharges will occur at individual stream and wetland locations at various times during the construction period.

F. Description of the Disposal Method

A number of methods will be used for fill placement. End-dumping will be used in may instances for the primary placement of fill into waters and wetlands. These fills will then be spread over the fill area or, as in the case of riprap, selectively placed with heavy equipment. Where feasible, large earth-moving machines may be used to both place and spread the fill material. During bridge construction concrete fill will be poured directly into sealed forms.

III. FACTUAL DETERMINATIONS

A. Physical Substrate Determination

1. Substrate Elevation and Slope.

Stream fills will have both permanent and temporary impacts on stream bed contours. The most significant permanent changes will occur at those stream crossings where channel relocations will be completed. Permanent changes in elevation and slope will also occur with the placement of concrete fills for bridge construction and riprap placement for erosion protection. Temporary fills at some stream crossings will be necessary for the construction of temporary road crossings to convey traffic during the work period. These fills will be completely removed at project completion. Additional temporary fills may be necessary for cofferdam construction. These fills will also be removed at project completion. Both individually and cumulatively, the effects of permanent and temporary fills on substrate elevation and slope will not be great.

Wetland fills associated with the project will result in permanent changes to substrate elevation and slope.

2. Comparison of Fill Material and Substrates at Discharge Sites.

Streambeds in the project area consist primarily of silt with some gravel and cobble. Fills placed into these streams will include unclassified earth borrowed from the immediate vicinity, concrete and riprap. Fills placed in wetland areas will be taken from borrow sites in the immediate vicinity and will be similar to the existing substrate.

Any substrate changes resulting from fill placement will be permanent except for those changes involving temporary fills. Individual and cumulative effects will be minor.

3. Dredged or Fill Material Movement.

Aside from the limited erosion of some of the finer textured fill material during and immediately after construction, the fills will be stable and remain in place.

4. Physical Effects on the Benthos.

Invertebrate benthic populations in the immediate fill areas will be destroyed by fill placement. However, construction will create some new benthic habitat and it is anticipated that invertebrate organisms will quickly repopulate these areas. Invertebrate species will be able to repopulate temporary fill areas once fills are removed. Populations in areas adjoining the fill sites may be adversely affected as eroded materials settle to the stream bed downstream of the work sites.

The streams directly affected by the proposed work have very limited vertebrate populations. Any vertebrates in the work areas will likely migrate away from construction disturbances as work begins. The applicant will take steps to limit sediments to the work areas in order to assure that vertebrate populations downstream are not adversely affected.

Individual and cumulative effects on benthic populations will not be substantial.

5. Erosion and Accretion Patterns.

Both erosion and accretion patterns will be affected by the proposed work. Erosion rates will increase during the work period since the disturbed soils and newly placed fills will be more susceptible to erosion than stable, vegetated soils. Consequently, the accretion rates in the affected streams will increase during construction and accretion patterns will be slightly altered.

Some increases in both erosion and accretion rates will occur with the channel changes. However, the new channels will be designed to minimize adverse effects by assuring that channel dimensions are similar to those of the existing channels and by installing riprap and grade control structures where necessary.

Overall impacts will be mostly minor and temporary.

6. Actions Taken to Minimize Impacts.

Most of the fill used on the project will come from local borrow sources and will be similar to the existing substrate at the fill locations. To further limit adverse impacts, all work will be completed during low-flow periods and fill areas will be minimized.

Disturbed stream banks and fills will be stabilized with riprap, vegetation or other means. The contractor will be required to follow criteria set forth in the Montana Department of Transportation's Erosion Control Manual. These criteria are designed to limit erosion thereby maintaining stream quality. A complete discussion of erosion control plans is contained in the DEIS, Chapter 4—Environmental Consequences.

B. Water Circulation, Fluctuation and Salinity Determinations

1. Water. (Results of preconstruction stream and water well testing are included in Attachment A)

a. **Salinity** — Only minor and temporary impacts on the salinity of the project area's streams are anticipated.

b. **Water Chemistry** — Minor and temporary fluctuations in water chemistry parameters will occur during the construction. Normal conditions will return with work completion.

c. **Clarity** — The clarity of the water in the streams crossed by the project will decline during construction as suspended sediment levels increase. However, many of these streams already exhibit increased turbidity. Turbidity levels will return to normal shortly after work completion.

d. **Color** — Construction will increase erosion rates, thereby putting additional particulates into the streams. This will alter water color to some degree. Effects will be localized and limited to the construction period.

e. **Odor** — Completion of the work is not expected to alter odor levels.

f. **Taste** — It is not anticipated that completion of the work will affect the taste of waters in the area.

g. Dissolved Gas Levels — With increased suspended solids and turbidity levels during construction, the photosynthesis rates of aquatic vegetation in project area streams will decrease. This will reduce dissolved oxygen levels. Effects will be minor and temporary, with dissolved oxygen levels returning to normal with work completion.

h. Nutrients — Nutrient levels will increase as nutrients in the disturbed soil and in the fill materials are leached into the streams. Both individual and cumulative effects will be minor with levels returning to normal at work completion.

i. Eutrophication — Streams and wetlands in the project area will not become more eutrophic as a result of work completion.

2. Current and Circulation Patterns.

a. Current Patterns, Drainage Patterns, Normal Flows — Channel modifications will occur at Butcher Creek, Beaver Creek, and Whitebird Creek. Modifications to Butcher Creek would involve minor channel shaping and realignment to accommodate the flow from Rosebud Creek, which functions as an irrigation system in that area. Bank reinforcement in this area would also be required. Modifications to Beaver Creek would involve a stream channel change because it will be necessary to relocate segments of Beaver Creek in order to remove it a sufficient distance from the new roadway. Modification at Whitebird Creek would involve a minor channel realignment.

The replacement channel segments will be designed to convey expected high flows. Grade control structures will be installed in the new channels where necessary.

Current patterns, drainage patterns and flow levels of other project area streams will not be affected.

b. Velocity — New bridges will be designed to pass expected high flows without obstruction. The velocity of flows will not be affected.

c. Stratification — The stratification of waters in the project area will not be affected by the proposed work.

d. Hydrologic Regime — With the exception of those sites where channel relocations will occur, there will be no effects on stream hydrologic regimes.

Most of the wetlands in the project area are supported by groundwater. Although portions of these wetlands will be filled, fill placement will not affect the hydrologic regime of the remaining wetlands.

e. Aquifer Recharge — Completion of the proposed work will have no noticeable effect on aquifer recharge.

3. Normal Water Level Fluctuations.

Normal fluctuations in water levels will not be affected by the work.

4. Salinity Gradients.

Salinity gradients are characteristic of salt water-fresh water mixing zones. None occur in the project area.

5. Actions Taken to Minimize Impacts.

Discharges will be limited to quantities necessary to achieve project objectives. Discharges will consist primarily of soil and aggregates similar to stream substrates. Current patterns and circulation will be maintained through the installation of bridges and culverts adequately sized to maintain flows.

C. Suspended Particulate and Turbidity Determinations

1. Expected Changes in Suspended Particulate and Turbidity Levels in the Vicinity of the Disposal Site.

Suspended particulate and turbidity levels will increase during the construction period due to the erosion of fill materials. Equipment working in the streams will also cause increases in suspended particulates and turbidity. Additional increases could result from the erosion of disturbed soils during storms. Levels will return to normal with the end of construction and the stabilization of soils and fills.

2. Effects on Chemical and Physical Properties of the Water Column.

a. **Light Penetration** — Increased suspended particulate and turbidity levels will reduce light penetration in and around the discharge sites. This will not be a significant impact given the already degraded nature of the streams. With the return of normal suspended particulate and turbidity levels at work completion, light penetration will return to normal.

b. **Dissolved Oxygen** — With reduced light penetration the photosynthesis rates of the submergent vegetation and phytoplankton will be reduced and dissolved oxygen levels will decrease. Effects will be minor and limited to the construction period.

c. **Toxic Metal and Organics** — Water quality tests indicate that high concentrations of toxic metals are not currently a problem in project area streams. Since most of the fill will come from borrow sources in the project area, it is not expected that the current levels of toxic metals in the streams will be affected.

No organic material will be introduced into streams or wetlands as part of construction.

d. **Pathogens** — All fill materials will be obtained from commercial sources or from the immediate project area. Fills will be clean and free of pathogens.

e. **Aesthetics** — The aesthetic nature of the streams crossed by the highway will be reduced to a limited degree during construction. This will be the direct result of suspended particulate and turbidity level increases. Impacts will not extend far downstream of the construction area and will not last beyond the construction period.

3. Effects on the Biota.

a. **Primary Production or Photosynthesis** — The limited plant communities in project area waters will have lower photosynthesis rates as a result of the reduced light penetration association with suspended particulate and turbidity increases. This will be a temporary impact since suspended particulate and turbidity levels will begin to decline at work completion. Impacts will be largely limited to the work area.

b. **Suspension/Filter Feeders** — Examples of collectors and filter feeders, such as net spinning caddis larvae and burrowing mayfly nymphs, will be affected if populations exist in project area streams. However, any impacts will be temporary and limited to the fill areas and the immediate downstream channel.

c. **Sight Feeders** — Sight feeders, primarily fish, will have increased difficulty finding food in the turbid water near the work sites. However, populations in these streams are limited and individuals will be able to migrate from the disturbed areas. Individual and cumulative impacts will be minor and temporary.

4. Actions Taken to Minimize Impacts.

Suspended particulate and turbidity level increases will be limited in a number of ways. Fill quantities will be limited to amounts necessary to achieve project objectives and these fills will be placed into waters during low-flow periods. The Montana Department of Transportation's *Erosion Control Manual* will be used to develop an erosion control plan for the project. The plan will include site-specific measures, such as straw bales, seeding and silt fences, to control surface erosion and restrict the entry of particulates onto the streams. Both temporary and permanent measures will be used. A more complete discussion of erosion control efforts can be found in the DEIS, Chapter 4—Environmental Consequences.

D. Contaminant Determinations

1. Evaluation of the Biological Availability of Possible Contaminants in the Fill Material

a. **Physical Characteristics of the Fill Material** — Fill materials will include earth, aggregates, concrete and riprap obtained from local or commercial sources. All fill material will be free of contaminants. Contractors will be required to follow the criteria established Article 107.11 "Environmental Protection" of the *Montana 1995 Standard Specifications for Road and Bridge Construction.*

b. **Hydrography in Relation to Known or Suspected Sources of Contamination** — There are no known or suspected sources of contamination in the project area, including those areas that are potential borrow sites.

c. **Results from Previous Testing of the Material or Similar Material in the Vicinity of the Project** — Borrow sites have not been identified and, therefore, potential fill has not been tested. No other testing of similar materials in the project area has been completed.

d. **Known, Significant Sources of Persistent Pesticides from Land Runoff or Percolation** — Pesticide use is associated with the significant agricultural development in the project corridor. However, no significant sources of pesticide contamination have been identified.

e. **Spill Records for Petroleum Products or Designated Hazardous Substances** — Three properties in Absarokee within the vicinity of the preferred alignment have the potential for hydrocarbon contaminated soils:

1. American Enterprises (Old Cobblestone Garage) – 19 Woodard Avenue: An underground storage tank leakage (LUST) was documented in 1992. An underground storage tank (UST) replaced the old tank and a new one is currently active. A long-term groundwater monitoring plan is in place.
2. Beartooth Trading Post (Kruger's Korner) – Highway 78 north end of Absarokee: In the process of removing two underground storage tanks in 1994, an open LUST site was revealed. 380 cubic yards of impacted soils were excavated during tank removal with minor impact to groundwater. Soils were land farmed.
3. JC Tire (Owen's Exxon) – Box 426, Woodard Avenue: This property is identified as an open unmapped LUST site. This site is currently being monitored.

f. Other Public Records of Significant Introduction of Contaminants from Industries, Municipalities or Other Sources — All available public records have been checked and no additional contaminant sources have been identified.

g. Known Existence of Substantial Deposits of Substances Which Could Be Released in Harmful Quantities by Man-induced Discharges — No deposits of potentially harmful materials are known to exist in the project corridor.

2. Contaminant Determination.

An evaluation of the appropriate information in 3.a. above indicates that there is reason to believe the proposed fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to contaminate. Therefore, the material meets the testing exclusion criteria.

E. Aquatic Ecosystem and Organism Determinations

1. Effects on Plankton.

The primary effects on plankton will be directly related to increases in suspended particulate and turbidity levels. These increases will cause decreased plankton populations during the work period. With the completion of work, populations will begin to return to normal. Individual and cumulative effects will be minor.

2. Effects on Benthos.

Benthic effects will occur only at those fill sites that contain water; riparian wetlands are normally supported by groundwater and, therefore, do not support benthic communities. Although benthic populations in the fill areas will be lost, most impacts will be minor since fill areas are small and populations are already limited. The most significant impacts will occur in areas where the existing stream channels will be filled and replaced by newly constructed channels away from the highway. However, new populations should quickly colonize the new channels.

3. Effects on Nekton.

As previously noted, streams in the project area are already degraded and nekton populations are limited. Any effects will be minor and temporary since it is anticipated that these species will migrate from the work areas when construction begins and will return or populate the new channels with project completion.

4. Effects on the Aquatic Food Web.

Since primary production will be reduced and some low and intermediate level food web species will be lost to fill placement, the ability of the aquatic ecosystem to sustain populations will be reduced during the construction period. With work completion water quality will improve, benthic populations will regenerate and food web function will return to normal. Individual and cumulative impacts will be minor.

5. Effects on Special Aquatic Sites.

As previously noted, these are of two types of wetlands within the study area, riparian and marsh. Project completion will require the filling of 0.931 hectares (2.301 acres) of wetland. The functions and values associated with these wetlands will be lost. Since large quantities of similar habitat will continue to exist in the project area, impacts will not be significant. In addition, compensatory mitigation wetlands will be constructed to offset adverse effects.

6. Effects on Threatened and Endangered Species.

The bald eagle (Threatened), black-footed ferret (Endangered), and the peregrine falcon (delisted) are listed by the USFWS as potentially occurring in the project area.

A viable bald eagle nest is located approximately 3.2 km (2.0 mi) west of Columbus along the Yellowstone River. The project areas is outside of the bald eagle nesting territory; however bald eagles may forage in the area. It is determined that the project is not likely to adversely affect the bald eagle.

There are no known occurrences of the black-footed ferret within the project area. It is determined that the project is not likely to adversely affect the black-footed ferret.

The peregrine falcon was recently delisted in August 1999. There are no known nesting sites within the project area; however, peregrines may migrate through the area in the spring and fall. It is determined that the project is not likely to adversely affect the peregrine falcon.

7. Effects on Other Wildlife.

Some wildlife habitat will be lost in association with the wetland fills. These areas provide habitat for upland game birds, songbirds, raptors, reptile and amphibian species, deer and small mammals. Given the extensive size of the riparian wetlands that will remain after work completion, displaced individuals will not have difficulty finding new habitat.

Butcher Creek, Joe Hill Creek, and Beaver Creek are known to support fish species including: brook trout, brown trout, white sucker, long nose sucker, mountain sucker, mountain whitefish, long nose dace, and minnow species.

It is not expected that the proposed work will affect the brown and rainbow trout populations or other aquatic populations in Rosebud Creek, East Rosebud Creek or the Stillwater River to any significant degree. These streams are removed from construction areas to the extent that the only potential effects would be from increased suspended particulate and turbidity levels as a result of sediments transported to them by the smaller streams of the work area. Implementation of the erosion control plan and other minimization efforts will restrict the possibility of this occurring.

8. Actions Taken to Avoid and Minimize Impacts.

a. Fills will be limited to the greatest extent possible in order to minimize the loss of habitat and the displacement of the individual animals occupying that habitat.

b. All fill material will be clean and free of contaminants and will be obtained in the project area or from commercial sources.

c. Every effort will be made to place fill material during low-flow periods.

d. Most of the fill material will be similar to the existing substrate of project area streams.

e. Streamflows will be maintained through the work areas during the construction period.

f. At work completion all temporary fills will be removed and original bottom contours will be reestablished.

g. An erosion control plan will be implemented to control the entry of sediments into streams and their migration downstream of the work areas.

9. Compensatory Actions to Mitigate Impacts.

Although efforts to limit adverse impacts will be maximized, some impacts are unavoidable. Such is the case with the wetland losses associated with the proposed work. It is currently the policy of the federal regulatory and resource agencies to require that permittees compensate for unavoidable wetland losses by developing compensatory wetlands to mitigate adverse effects.

Wetland compensatory replacement for this proposed project would be provided through the use of wetlands constructed at the MDT/Stillwater County Stillwater River Wetland Mitigation Site south of the Town of Columbus. This site is located to the west of the study area along the southeast bank of the Stillwater River in Lots 5 and 6, Township 3S, Range 19E, Section 22, west of RP(MP) 37.8±. This wetland mitigation site was completed in late 1998 as a wetland partnership among MDT, the Town of Columbus and Stillwater County. Approximately 16 percent [0.45 ha (1.12 acres)] of the completed mitigation site has been assigned to the Columbus Airport Project wetland impacts. The remaining approximately 84 percent [2.38 ha (5.88 ac)] is available for MDT project impacts. This easement protected and monitored wetland mitigation site has been initially rated as Category II (post construction) with excellent potential to develop fully as Category I. There are sufficient compensatory wetlands available at this site to accommodate replacement for the proposed P-78 project wetland impacts.

F. Proposed Disposal Site Determinations

1. Mixing Zone Determinations.

a. **Depth of Water at the Disposal Site** — The streams of the project corridor are 0.3-0.6 m (1-2 ft) deep at the fill sites.

b. **Current Velocity, Direction and Variability** — During the normal construction period stream velocities are limited and do not vary significantly. Velocities are somewhat higher in the spring due to snowmelt and precipitation events. The streams flow to the north or west where they join Rosebud Creek or the Stillwater River.

c. **Degree of Turbulence** — Project area streams are low gradient streams with little turbulence.

d. **Water Column Stratification** — The streams are normally not stratified to any noticeable degree since they are very shallow and there is usually some current to continually mix the water.

e. **Rate of Discharge** — It is anticipated that the fills will be placed into the individual streams at various times during the construction period which normally extends from April through November. Each instance of fill placement will require only a brief period of time since it will involve only the placement and distribution of the fill with heavy equipment.

f. **Ambient Concentrations of Constituents of Interest** — No constituents of interest have been identified.

g. **Dredged Material Characteristics** — The concrete and riprap fills will be stable to the extent that the concept of a mixing zone does not apply. The fill borrowed from nearby locations will contain varying quantities of fines which will more readily become suspended in the water. The applicant will limit these fill quantities and will take other steps to stabilize the fills and restrict suspended particulates to the work areas.

h. **Number of Discharges Per Unit of Time** — Discharges will occur at intervals throughout the construction period.

2. Disposal Site and Size.

An evaluation of the appropriate factors in F.1. above indicates that the disposal site and/or sizes of the mixing zones are acceptable.

3. Actions to Minimize Adverse Discharge Effects.

All appropriate and practicable steps have been taken, through application of the steps identified in Section 230.70 – 230.77 to ensure minimal adverse effects of the proposed discharge. These include:

a. Limiting the size of fill areas to the minimum necessary to achieve project goals;

b. Selecting fill material that is similar to existing substrate;

c. Designing fills to maintain stream flows through the work areas during construction and ensuring that culverts and bridges area adequately sized and placed to pass both low and high flows;

d. Ensuring that all fill material is clean and free of contaminants;

e. Stabilizing discharges with riprap, vegetation or taking other protective measures;

f. Timing discharges to coincide with low-flow periods;

g. Implementing an erosion control plan that will confine suspended particulates to the immediate work areas;

h. Minimizing impacts to current and circulation patterns;

i. Developing compensatory mitigation habitat to replace lost wetland functions and values.

4. Determination of Compliance with Applicable Water Quality Standards.

The Montana Department of Environmental Quality will review the proposed project to determine compliance with Section 401 of the Clean Water Act. Issuance of Section 401 certification will indicate that applicable water quality standards will not be violated by completion of the work.

5. Potential Effects on Human Use Characteristics.

a. Municipal Private and Potential Water Supplies — The sources of water for the town of Absarokee are at least one-half mile from the proposed construction area and are sufficiently removed so as not to be affected by the work.

A number of private wells are located in the project corridor. Several of these wells will be impacted by the project. The wells impacted will be relocated in consultation with the property owner. Neither surface nor subsurface drainage patterns will be altered. The results of preconstruction water quality testing on these wells and project area streams have been attached to this evaluation as Attachment A.

b. Recreation and Commercial Fisheries — Recreational fisheries do not exist on streams directly affected by the proposed work. Brown and rainbow trout fisheries do exist in the nearby Stillwater River where the Montana Department of Fish, Wildlife and Parks provides fishing access. As previously noted, the applicant will take the necessary steps to eliminate or minimize adverse impacts to this fishery.

No commercial fisheries are found in the project area.

c. **Water Related Recreation** — There is no water related-recreation on the streams to be directly impacted by the work. Some rafting, canoeing and kayaking is done on the Stillwater River. The recreational use will not be affected by the proposed work with, perhaps, the exception of increased noise levels during the construction period.

d. **Aesthetics of the Aquatic Ecosystem** — During construction the aesthetic quality of project corridor streams and associated riparian zones will be adversely altered at the crossing sites. This will result from vegetation removal and soil disturbance. The streams themselves will have a reduced aesthetic quality due to fill placement and increases in suspended solids. With project completion and revegetation, the aesthetic quality of the aquatic ecosystems will return to normal.

The aesthetic quality of wetland communities in the project corridor will be altered with the loss of wetland acreage to fill placements. The aesthetic nature of the remaining wetlands will not be adversely affected.

e. **Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, Refuges, Sanctuaries and Similar Preserves** — No parks, national or historic monuments, national seashores, wilderness areas, research sites, refuges, sanctuaries or similar preserves exist within the corridor.

G. Determination of Cumulative Effects on the Aquatic Ecosystem

Neither the individual nor the cumulative effects of the proposed stream fills will be significant. Although the loss of wetland acreage is an issue of national concern, the proposed losses are unavoidable and compensatory mitigation will be completed to replace lost functions and values. Cumulative impacts to streams and wetlands resulting from the proposed work will not be significant.

No other discharges of dredged or fill material are know to have occurred in the project area in recent years.

H. Determination of Secondary Effects on the Aquatic Ecosystem

Two potential secondary effects associated with construction have been identified. The first involves increased stream suspended particulate and turbidity rates as a result of the erosion of construction-disturbed soils in the project area. As noted previously, the applicant will implement an erosion control plan to limit impacts to acceptable levels.

An additional secondary effect could occur as a result of the spillage of equipment fuel and lubricants. Should a spill occur these materials could enter a stream and have an adverse effect on aquatic life. The applicant will require contractors to implement a plan to guard against this possibility.

IV. FINDINGS OF COMPLIANCE

A. Adoption of the Section 404 (b) (1) Guidelines to This Evaluation

This evaluation does not deviate from the requirements outlined in 230.10 and all requirements have been met.

B. Evaluation of the Availability of Practicable Alternatives to the Proposed Discharge Sites Which Would Have Less Adverse Impact on the Aquatic Environment

Alternatives considered include:

1. The "no build" or "no action" alternative.
2. Overlay and widen the existing route, reconstructing only unsafe areas.
3. Complete reconstruction for the length of the project with a 9.6 m (32 ft) paved roadway outside Absarokee and several realignments for its northern end were evaluated.
4. Complete reconstruction for the length of the project with a 10.8 m (36 ft) paved roadway outside Absarokee and several realignments for its northern end were evaluated. For a complete discussion of alternatives see the DEIS, Chapter 2 – Alternatives.

C. Compliance with Applicable State Water Quality Standards

A short-term exemption from Montana's Surface Water Quality Standards (3A authorization) will be obtained from the Montana Department of Environmental Quality. The Department of Environmental Quality will also be requested to issue a Montana Pollutant Discharge Elimination System permit. Certification of the project by the Department of Environmental Quality pursuant to Section 401 of the Clean Water Act will be required prior to issuance of a Section 404 permit and will be considered conclusive as to the project's compliance with water quality standards.

D. Compliance with Applicable Toxic Effluent Standards or Prohibitions under Section 307 of the Clean Water Act.

Section 307 of the Clean Water Act establishes limitation or prohibitions on the discharge materials containing certain toxic pollutants. The discharges associated with the proposed work will contain none of these toxins and, therefore, the project complies with Section 307.

E. Compliance with the Endangered Species Act of 1973

No threatened or endangered species or their critical habitat will be affected by the proposed work. The project complies with the stipulations of the Endangered Species Act.

F. Compliance with Specific Measures for Marine Sanctuaries Designated by the Marine Protection, Research and Sanctuaries Act of 1972

The act does not apply to the project.

G. Evaluation of the Extent of Degradation of Waters of the United States

1. Significant Adverse Effects on Human Health and Welfare

a. Municipal and Private Water Supplies — The project will not affect municipal water supplies. Any private well impacted by the project will be relocated in consultation with the property owner.

b. Recreational or Commercial Fisheries — Any impacts to recreational fisheries will be insignificant. No commercial fisheries exist in the project area.

c. Plankton — Adverse impacts to plankton will be minor and limited to the construction period.

d. Fish — Fish populations in project corridor streams are small. Any impacts to them will be minor and limited to the construction period.

e. Shellfish — No shellfish populations have been identified in project corridor streams.

f. Wildlife — Wildlife populations in the construction area and the vicinity will be affected to differing degrees. Overall adverse impacts to wildlife populations will not be great. Populations will benefit to some degree from work completion in that improved sight distances will better enable motorists to avoid animals on the highway.

g. Special Aquatic Sites — Although wetland impacts will total 0.931 ha (2.301 ac), impacts are considered acceptable in light of the development of mitigation wetlands to offset adverse impacts.

2. Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems.

The number of wetland hectares lost to the project will be 0.931 ha (2.301 ac). However, both direct and indirect adverse impacts to aquatic life will not be significant due to precautions taken by the applicant and the development of mitigation wetlands.

3. Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity and Stability.

Ecosystem diversity, productivity and stability will not be adversely affected to any significant degree.

4. Significant Adverse Effects on Recreational, Aesthetic and Economic Values.

Significant adverse effects to recreational, aesthetic and economic values will not occur.

H. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem

All practicable steps have been taken to minimize adverse impacts associated with the discharges.

I. Finding

The proposed discharges of fill material are specified as complying with the requirements of the 404 (b) (1) Guidelines, with the inclusion of appropriate and practicable conditions as identified herein to minimize pollution or adverse effects on the aquatic ecosystem. These conditions will be attached to and made part of the Section 404 permit.

Approved by: ______________________________

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Date: ______________________________

Attachment A

Preconstruction Stream and Water Well Testing Data

Well Locations: Reference Table

Reference Post (Mile Post)	2000 Project Station	1994 Project Station
33.7±L	71+76±L	375+78±L
33.7±R	71+92±R	375+94±R
33.8±R	74+34±R	385+15±R
34.5±L	86+75±L	426+00±L
36.4±R	115+99±R	455+25±R
39.0±R	158+61±R	498+62±R
39.5±L	166+20±L	686+40±L
39.5±R	166+30±R	686+95±R
39.6±R	168+50±R	693+95±R
39.7±R	170+47±R	700+34±R
41.5±L	199+10±L	729+00±L
43.0±R	222+63±R	871+30±R
43.5±L	230+25±L	896+40±L
45.5±L	263+00±L	1004+35±L
45.6±R	264+90±R	1010+85±R
45.8±R	268+54±R	1023+05±R
45.8±R	268+75±R	1023+21±R

Source: MSE-HKM, 2000.
L = left
R = right
± = approximately

FILE
COPY

Montana Department of Transportation
Helena, Montana 59620

Memorandum

To: R. Scott Barnes, P.E., Supervisor
Geotechnical Section

From: Gordon J. Stockstad, (acting) Chief
Environmental & Hazardous Waste Bureau

Date: June 3, 1994

Subject: F 78 - 2(5)27
Absarokee - Columbus
(P.M.S. C#0920)

The copies of the Well Report forms from the MDNR&C have been reviewed. The following well locations were recorded as domestic use on these forms. Please provide a water quality analysis (wqa) on each as they may be impacted by this project. This wqa is to include turbidity, pH, conductivity, basic metals, and coliform analyses.

Absarokee - North & South portion

Project Station	Water Right №	Well Rate	Well Depth	$\blacktriangledown_s$ Level	Yield Rate	Casing Dia.
376+78 L	C024970	15_{gpm}	35′	12′	50_{gpm}	6.63"
385+15 R	C078063	28_{gpm}	~	~	~	~
426+00 L	T064511	~	28′	8′	35_{gpm}	6.62"
		Columbus - South portion				
686+40 L	W007490	40_{gpm}	~	~	50_{gpm}	~
686+95 R	W012149	20_{gpm}	~	~	20_{gpm}	~
693+95 R	C077745	6_{gpm}	200′	65′	6_{gpm}	4.5"
700+34 R	W195811	25_{gpm}	~	~	25_{gpm}	~
871+30 R	C016618	15_{gpm}	170′	55′	30_{gpm}	6.62"
896+40 R	C064501	30_{gpm}	48′	~	10_{gpm}	7"
1004+35 L	C032934	7_{gpm}	54′	31′	7_{gpm}	6.63"
1010+85 R	C054148	20_{gpm}	25′	14′	20_{gpm}	6.63"
1023+05 R	C088818	10_{gpm}	31′	21′	10_{gpm}	6"

~ - indicates "0" value shown on MDNR&C Well Report
$\blacktriangledown_s$ - indicates "Static Water" level

Please also provide a wqa for each of the following seven stream crossings (note: the coliform portion of the analyses is not needed for these):

Absarokee - North & South portion

Station	(MilePost)	Name of Stream
74+30	(27.9±)	Chimney Creek
192+60	(30.2±)	Butcher Creek
442+40	(34.9±)	Beaver Creek
		Columbus- South portion
562+75	(37.3±)	Mexican Joe Creek
684+30	(39.5±)	Whitebird Creek
815+60	(42.0±)	Joe Hill Creek
897+00	(43.6±)	Shane Creek

These are needed for the consultant's *404(b)(1)* analysis, which will be included in the DEIS for this project.

GJS:KMH:asj:[*.ACED]WQA-RSB.REQ

Attachments

cc: R. R. Ventura
C. S. Peil
G. J. Stockstad

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FAX (406) 252-6069 • 1-800-735-4

LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-46022
DATE: 10/03/94 jmw

WATER ANALYSIS

Joe Hill Cr.
Sampled 09/15/94 @ 0847
Submitted 09/15/94

Constituent	mg/l (ppm)		Date Analyzed
Specific Conductance @ 25°C	314	µmhos/cm	09/17/94
pH	8.0	s.u.	09/17/94
Turbidity	6.1	N.T.U.	09/16/94
Fecal Coliform Bacteria	723	col/100ml	09/15/94
Total Metals			
Antimony	<0.05		09/22/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/19/94
Beryllium	<0.001		09/19/94
Cadmium	<0.001		09/19/94
Chromium	<0.01		09/19/94
Copper	<0.01		09/19/94
Lead	<0.01		09/19/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/19/94
Selenium	<0.005		09/19/94
Thallium	<0.1		09/27/94

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-46023
DATE: 10/03/94 jmw

WATER ANALYSIS

Whitebird Cr.
Sampled 09/15/94 @ 0920
Submitted 09/15/94

Constituent	mg/l (ppm)		Date Analyzed
Specific Conductance @ 25°C	270	µmhos/cm	09/17/94
pH	7.8	s.u.	09/17/94
Turbidity	2.0	N.T.U.	09/16/94
Fecal Coliform Bacteria	224	col/100ml	09/15/94
Total Metals			
Antimony	<0.05		09/22/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/19/94
Beryllium	<0.001		09/19/94
Cadmium	0.001		09/19/94
Chromium	<0.01		09/19/94
Copper	<0.01		09/19/94
Lead	<0.01		09/19/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/19/94
Selenium	<0.005		09/19/94
Thallium	<0.1		09/27/94

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-46024
DATE: 10/03/94 jmw

WATER ANALYSIS

Mexican Joe Cr.
Sampled 09/15/94 @ 1000
Submitted 09/15/94

Constituent	mg/l (ppm)		Date Analyzed
Specific Conductance @ 25°C	196	μmhos/cm	09/17/94
pH	8.0	s.u.	09/17/94
Turbidity	2.9	N.T.U.	09/16/94
Fecal Coliform Bacteria	465	col/100ml	09/15/94
Total Metals			
Antimony	<0.05		09/22/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/19/94
Beryllium	<0.001		09/19/94
Cadmium	<0.001		09/19/94
Chromium	<0.01		09/19/94
Copper	<0.01		09/19/94
Lead	<0.01		09/19/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/19/94
Selenium	<0.005		09/19/94
Thallium	<0.1		09/27/94

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-46025
DATE: 10/03/94 jmw

WATER ANALYSIS

Beaver Cr.
Sampled 09/15/94 @ 1027
Submitted 09/15/94

Constituent	mg/l (ppm)		Date Analyzed
Specific Conductance @ 25°C	626	μmhos/cm	09/17/94
pH	8.1	s.u.	09/17/94
Turbidity	5.0	N.T.U.	09/16/94
Fecal Coliform Bacteria	156	col/100ml	09/15/94
Total Metals			
Antimony	<0.05		09/22/94
Arsenic	<0.005		09/20/94
Barium	0.1		09/19/94
Beryllium	<0.001		09/19/94
Cadmium	<0.001		09/21/94
Chromium	<0.01		09/19/94
Copper	<0.01		09/19/94
Lead	<0.01		09/21/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/19/94
Selenium	<0.005		09/19/94
Thallium	<0.1		09/27/94

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-46026
DATE: 10/03/94 jmw

WATER ANALYSIS

Butcher Cr.
Sampled 09/15/94 @ 1050
Submitted 09/15/94

Constituent	mg/l (ppm)		Date Analyzed
Specific Conductance @ 25°C	338	μmhos/cm	09/17/94
pH	8.1	s.u.	09/17/94
Turbidity	10	N.T.U.	09/16/94
Fecal Coliform Bacteria	2100	col/100ml	09/15/94
Total Metals			
Antimony	<0.05		09/22/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/19/94
Beryllium	<0.001		09/19/94
Cadmium	<0.001		09/19/94
Chromium	<0.01		09/19/94
Copper	<0.01		09/19/94
Lead	<0.01		09/19/94
Mercury	<0.001		09/15/94
Nickel	<0.01		09/19/94
Selenium	<0.005		09/19/94
Thallium	<0.1		09/27/94

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45918
DATE: 09/26/94 lm

WATER ANALYSIS

Shane Creek
Sampled 09/14/94 @ 0920
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	598	μmhos/cm	09/17/94
pH	8.1	s.u.	09/17/94
Turbidity	10	N.T.U.	09/15/94
Fecal Coliform Bacteria	1300	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/22/94
Arsenic	<0.005		09/20/94
Barium	0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/16/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45907
DATE: 09/26/94 lm

WATER ANALYSIS

378 + 78 LT
Sampled 09/14/94 @ 1430
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	320	µmhos/cm	09/17/94
pH	7.3	s.u.	09/17/94
Turbidity	0.25	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	0.04		09/16/94
Lead	<0.01		09/16/94
Mercury	<0.001		09/16/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45908
DATE: 09/26/94 lm

WATER ANALYSIS

385 + 15 RT
Sampled 09/14/94 @ 1355
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	1280	μmhos/cm	09/17/94
pH	8.0	s.u.	09/17/94
Turbidity	0.20	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/19/94
Mercury	<0.001		09/16/94
Nickel	<0.01		09/16/94
Selenium	0.019		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45909
DATE: 09/26/94 lm

WATER ANALYSIS

686 + 40 LT
Sampled 09/14/94 @ 1330
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	400	µmhos/cm	09/17/94
pH	7.7	s.u.	09/17/94
Turbidity	0.21	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/16/94
Mercury	<0.001		09/16/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45910
DATE: 09/26/94 lm

WATER ANALYSIS

686 + 95 RT
Sampled 09/14/94 @ 1230
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	397	μmhos/cm	09/17/94
pH	7.8	s.u.	09/17/94
Turbidity	0.30	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/16/94
Mercury	<0.001		09/16/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45911
DATE: 09/26/94 lm

WATER ANALYSIS

693 + 95 RT
Sampled 09/14/94 @ 1300
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	444	μmhos/cm	09/17/94
pH	7.8	s.u.	09/17/94
Turbidity	0.40	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/16/94
Mercury	<0.001		09/16/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/12/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45912
DATE: 09/26/94 lm

WATER ANALYSIS

700 + 34 RT
Sampled 09/14/94 @ 1215
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	466	μmhos/cm	09/17/94
pH	7.8	s.u.	09/17/94
Turbidity	0.22	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/19/94
Mercury	<0.001		09/16/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45913
DATE: 09/26/94 lm

WATER ANALYSIS

871 + 30 RT
Sampled 09/14/94 @ 0940
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	669	µmhos/cm	09/17/94
pH	8.2	s.u.	09/17/94
Turbidity	0.63	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/16/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45914
DATE: 09/26/94 lm

WATER ANALYSIS

896 + 40 LT
Sampled 09/14/94 @ 0915
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	346	μmhos/cm	09/17/94
pH	7.8	s.u.	09/17/94
Turbidity	0.75	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/21/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

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LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45915
DATE: 09/26/94 lm

WATER ANALYSIS

1004 + 35 LT
Sampled 09/14/94 @ 1130
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	332	µmhos/cm	09/17/94
pH	7.8	s.u.	09/17/94
Turbidity	0.29	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/16/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

ENERGY LABORATORIES

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1107 SOUTH BROADWAY • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45916
DATE: 09/26/94 lm

WATER ANALYSIS

1010 + 85 RT
Sampled 09/14/94 @ 1120
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	308	µmhos/cm	09/17/94
pH	7.9	s.u.	09/17/94
Turbidity	0.31	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	<0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/19/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

ENERGY LABORATORIES

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FAX (406) 252-6069 • 1-800-735-448

LABORATORY REPORT

TO: Wirth Design Associates
ADDRESS: 1600 Poly Drive
Billings, MT 59102

LAB NO.: 94-45917
DATE: 09/26/94 lm

WATER ANALYSIS

1023 + 05 RT
Sampled 09/14/94 @ 1015
Submitted 09/14/94

Constituent			Date Analyzed
Specific Conductance @ 25° C	662	μmhos/cm	09/17/94
pH	8.3	s.u.	09/17/94
Turbidity	0.78	N.T.U.	09/15/94
Fecal Coliform Bacteria	<1	col/100 ml	09/14/94
Total Metals	mg/l (ppm)		
Antimony	<0.05		09/21/94
Arsenic	<0.005		09/20/94
Barium	0.1		09/16/94
Beryllium	<0.001		09/16/94
Cadmium	<0.001		09/16/94
Chromium	<0.01		09/16/94
Copper	<0.01		09/16/94
Lead	<0.01		09/16/94
Mercury	<0.001		09/19/94
Nickel	<0.01		09/16/94
Selenium	<0.005		09/15/94
Thallium	<0.1		09/16/94

pc: John Raty, Olympus

Lab Nos. 94-46022-6

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

	Duplicate Analysis ——mg/l (ppm)——				——Reference——		
Constituent	Original	Duplicate	Spiked Analysis, % Recovery	Blank Analysis, mg/l (ppm)	Sample Analysis, mg/l (ppm)	Acceptance Range, mg/l (ppm)	Date Analyzed
Specific Conductance @ 25°C, μmhos/cm	586	586	N/A	1	N/A	N/A	09/17/94
pH, s.u.	8.0	7.9	N/A	N/A	N/A	N/A	09/17/94
Turbidity, N.T.U.	6.1	6.1	N/A	0.02	N/A	N/A	09/16/94
Total Metals							
Antimony	<0.05	<0.05	109	<0.05	0.016	0.008-0.031	09/22/94
Arsenic	<0.005	<0.005	89	<0.005	0.034	0.024-0.039	09/20/94
Barium	<0.1	<0.1	110	<0.1	1.0	0.85-1.15	09/19/94
Beryllium	<0.001	<0.001	112	<0.001	1.02	0.85-1.15	09/19/94
Cadmium	<0.001	<0.001	107	<0.001	0.98	0.85-1.15	09/19/94
Chromium	<0.01	<0.01	112	<0.01	1.03	0.85-1.15	09/19/94
Copper	<0.01	<0.01	110	<0.01	1.01	0.85-1.15	09/19/94
Lead	<0.01	<0.01	110	<0.01	1.01	0.85-1.15	09/19/94
Mercury	<0.001	<0.001	100	<0.001	0.001	0.001-0.002	09/19/94
Nickel	<0.01	<0.01	109	<0.01	1.03	0.85-1.15	09/19/94
Selenium	<0.005	<0.005	91	<0.005	0.119	0.093-0.148	09/19/94
Thallium	<0.1	<0.1	87	<0.1	0.020	0.014-0.028	09/27/94

Lab Nos. 94-45907-18

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

Constituent	Duplicate Analysis ——mg/l (ppm)—— Original	Duplicate	Spiked Analysis, % Recovery	Blank Analysis, mg/l (ppm)	——Reference—— Sample Analysis, mg/l (ppm)	Acceptance Range, mg/l (ppm)	Date Analyzed
Specific Conductance @ 25° C µmhos/cm	466	466	N/A	1	N/A	N/A	09/17/94
pH, s.u.	7.3	7.3	N/A	N/A	N/A	N/A	09/17/94
Turbidity, N.T.U.	0.25	0.25	N/A	0.03	N/A	N/A	09/15/94
Total Metals							
Antimony	<0.05	<0.05	109	<0.05	0.017	0.008-0.031	09/21/94
Arsenic	<0.005	<0.005	89	<0.005	0.034	0.024-0.039	09/20/94
Barium	0.1	0.1	102	<0.1	1.0	0.85-1.15	09/16/94
Beryllium	<0.001	<0.001	108	<0.001	1.06	0.85-1.15	09/16/94
Cadmium	<0.001	<0.001	106	<0.001	1.02	0.85-1.15	09/16/94
Chromium	<0.01	<0.01	108	<0.01	1.06	0.85-1.15	09/16/94
Copper	<0.01	<0.01	102	<0.01	1.00	0.85-1.15	09/16/94
Lead	<0.01	<0.01	103	<0.01	1.06	0.85-1.15	09/16/94
Mercury	<0.001	<0.001	96	<0.001	0.001	0.001-0.002	09/16/94
Nickel	<0.01	0.01	110	<0.01	1.04	0.85-1.15	09/16/94
Selenium	<0.005	<0.005	99	<0.005	0.128	0.093-0.148	09/15/94
Thallium	<0.1	<0.1	108	<0.1	0.018	0.014-0.028	09/16/94

pc: John Raty, Olympus

APPENDIX G: MEETING MINUTES

Cooperating Agency Meeting Minutes: April 27, 1999

Public Meeting Minutes
  November 4, 1998 and November 5, 1998
  April 26, 1999 and April 27, 1999
  February 17, 2000

Small Group Meeting Minutes
  Absarokee Meetings
    January 19, 1999
    February 10, 1999

  Riverside Inn Meeting
    April 20, 1999

P-78 ABSAROKEE TO COLUMBUS
Agency Meeting
April 27, 1999

An agency meeting was held at the Apple Village Café in Columbus at 9:00 a.m. on April 27, 1999. The purpose of this meeting and field review was to provide agencies with information on the status of the P-78 project, identify schedule constraints and ask for agency assistance with a shortened schedule, and identify agency issues or concerns.

Bruce Barrett, MDT District Administrator provided information on the history of the P-78 project and the status of the EIS process.

The overall schedule for the EIS and project was discussed. Points of agency review and input were identified as a review of the Preliminary Draft EIS (PDEIS), the comment period for the DEIS, before the final EIS and as part of the 404 permit request from the US COE. Due to the overall project schedule constraints, agencies were asked to shorten their review period for the PDEIS. MDT agreed to notify the agencies in advance of the PDEIS review period to help agencies in scheduling their review.

Meeting attendees were provided with a summary of public comments and issues from the November 1998 scoping meetings held in Absarokee and Columbus. These issues were grouped according to general comments relating to the project, Nellie's Corner Alignment options, and Absarokee improvements.

Project elements that may be of interest to the agencies were highlighted. These included the following.

Bridge Replacements: Butcher Creek, Beaver Creek, Joe Hill Creek and Shane Creek.

Channel Changes: Whitebird Creek and Beaver Creek.

Nellie's Corner Alternatives: the criteria for evaluating the alternatives and the information known to-date was presented.

Wetlands: the wetlands in the corridor were delineated and identified in the plan sets provided to all attendees. Due to changes in alignment and the proposed typical section, the amount of wetlands impacted is greatly reduced in the most recent design.

The meeting was then open to discussion about agency issues or concerns. These issues are summarized below in conjunction with the issues identified during the field review. The field review started at FAS 419 south of Absarokee and continued north ending at the south side of the Yellowstone River bridge south of Columbus. Stops along the corridor included the following locations:

- FAS 419
- Butcher Creek

- High School baseball field
- Absarokee
- Riverside Inn
- Potential wetland mitigation site
- Beaver Creek
- Nellie's Corner

Included in the field review was a stop at the potential wetland mitigation site for the P-78 project. This site was initially developed for wetland mitigation for the airport expansion project.

Issues discussed during the meeting or field review included the following:

- Springs - The Blaylocks had contacted DNRC because they were concerned about impacts to the spring on their property. It was determined that none of the alternatives would impact the spring.

- Yellowstone River Bridge – there was concern about the rip-rap that had washed out; the replacement of the rip-rap is a separate project that is on-going.

- Beaver Creek – channel changes may require a step structure.

- 404 Permit – will be handled by the Omaha COE office.

- Permit for Temporary Use of Water – contractors need to obtain this permit, which may take 90-120 days to obtain and therefore can impact schedule. As part of the pre-bid conference, contractors could be notified of this requirement, or MDT could obtain this permit.

- Butcher Creek – water is transferred in from Rosebud Creek, so it functions as an irrigation delivery system. There was concern that the bridge accommodate the flow. Bank reinforcement is planned.

- Absarokee – investigate design treatment to discourage parking at school crosswalks.

- Absarokee – potential encroachments into right-of-way were identified.

- Absarokee Drainage Ditches – on the north end of the town of Absarokee, the drainage ditches need to be considered in the roadway design.

- Shane Creek – bank reinforcement is proposed.

- Swinging Bridge Fishing Access – the approach road intersection with P-78 does not have good site distance and could be improved. Sometime rafters pull out in this location.

- Potential Wetland Mitigation Site – mitigation for airport is establishing well; the use of this site is an option for the P-78 project.

- Agency Coordination – plan sets and meeting information will be sent to agencies not in attendance.

Meeting Handouts:
- Project Overview
- Public Comments from the November Public Meetings
- Plan Sets for Alternative B

Attendees:

Keith Kerbel, DNRC
Barbara Berry, NRCS
Mike Poore, MFWP
Larry Robson, US Army COE
Dale Paulson, FHWA
Darrin Grenfell, FHWA
Bruce Barrett, MDT- Billings
Gary Neville, MDT – Billings
Fred Bente, MDT
Karl Helvik, MDT
John Shoff, MSE-HKM
Jim Foley, Wirth Design
Debra Perkins-Smith, BRW
Darryl James, BRW
Beth Kunkel, BRW

Public Comments at April 27, 1999 Cooperating Agency Meeting

The following comments were presented by the public regarding issues discussed at the April 27, 1999 meeting.

Project Alternatives. The majority of comments centered around the need for immediate improvements. Many noted that the planning process is too long – the project is long overdue – and stressed the need to get the road built now! The urgency was largely related to safety concerns.

Some of the concerns expressed were:

- Numerous accidents throughout the corridor – everyone in the area knows someone hurt or killed on this roadway.
- Nowhere to pass due to bad horizontal and vertical curves
- No recovery area
- Truck traffic crosses centerline
- Need speed limit once road is completed – safety will not improve if speed increases

Alignment Comparison. The No-Build Alternative does not address those concerns. The new alignment alternative does not address the safety concerns of the existing roadway. The upgrade alternative addresses the public safety concerns and received the greatest support.

Action: *Forward the Upgrade Alternative for detailed environmental analysis*

Additional comments pertaining to the roadway design and maintenance included:

Design
- Provide passing lanes
- Identify turnouts for slower moving traffic
- Would like bike/jog path along P-78
- Reconstruct section beyond fishtail intersection
- Be flexible in application of design standards
- Minimize right-of-way requirements
- Install deer fencing
- Grade beyond right-of-way to create flatter areas for fence construction
- Need sensitivity to irrigation facilities, wells, and historic homes/buildings
- Move alignment into hillside (around Sta 87) to reduce irrigation impacts
- Improve P-78 / 421 intersection

Maintenance
- Need better snow removal
- Sand earlier in the day
- Mow right-of-way to fence-lines to improve visibility of approaching wildlife

Public Comments from Cooperating Agency Meeting held April 27, 1999.

Environmental
- Identify historic properties
- Reduce wetland impacts

Nellie's Corner Alignment Options. MDT received varied comments on Alignment Options A-C at Nellie's Corner. Safety and property impacts were the overriding concerns as people offered the following comments:

- New alignment needs to address shading/icing problem
- Minimize impacts to wells and irrigation facilities
- Minimize amount of existing alignment to be abandoned
- Minimize farmland impacts

MDT also added two additional alignments for review based on public comment. These alignment options are: D – the "saddle" alternative, and E – the "new bridge" alternative.

Action: *Gain additional input on the current set of Alignment Options A-E. Conduct screening analysis of alternatives A-E, and conduct detailed environmental analysis on alternatives carried forward.*

Absarokee Re-construction Options. MDT received varied comments on the location and timing of improvements through Absarokee. They Included:

- Do not raise roadway grade higher than existing – water spills onto sidewalks now – Absarokee Water & Sewer District wants to coordinate construction timing with planned water improvements
- Provide a by-pass on the east side of Absarokee
- Install a traffic signal at IGA
- Lower speed limit and provide lighting for safety of students between high school and elementary school
- Provide sidewalk along the back of school (down Montana Avenue)
- Provide bike/jog path in vicinity of Absarokee

Action: *Continue to work with the town of Absarokee to determine what best serves the needs of the roadway users and the community, and determine what additional improvements requested could be included as components of this project.*

MONTANA
P-78
Absarokee to Columbus

Environmental Impact Study

Agency Coordination Meeting [illegible]

Meeting Agenda

9:00 - 9:30 pm	Project History Current Status Review Planned Stops on Corridor Tour
9:30 - 12:00 pm	Corridor Tour
12:00-1:00 pm	Lunch
1:00-2:00 pm	Review Agency Issues (if necessary)

Project Purpose

Alternatives forwarded for detailed analysis are those which meet the Purpose & Need for the project by:

- Improving Safety
- Accommodating the Increasing Travel Demands
- Improving the Efficiency of Travel Throughout the Corridor

and which provide a design that:

- Minimizes impact to agricultural land
- Minimizes impact to irrigation facilities
- Minimizes right-of-way purchases & relocations
- Provides cost-effective improvements
- Avoids or minimizes impacts to cultural, historical, & natural resources

Alternatives Evaluation

ALTERNATIVE	IMPROVE SAFETY ON P-78	ROW/PROPERTY IMPACTS	EVALUATION
No Build *Regular Maintenance (Overlay, Mill)*	No	None	Retained for baseline comparison
Upgrade Existing Corridor *to Current Standards*	Yes	Minor	Retained for further analysis
New Alignment *Outside of Existing Corridor*	No	Major	Eliminated due to severity of potential impacts, cost consideration, & lack of widespread public support

P-78 Absarokee to Columbus
Summary of November 4th and 5th Public Meetings

Public Meeting Notification

Postcards - Approximately 3,000 postcard notices for the public meeting were sent to residents with addresses in Columbus, Absarokee, Fishtail, Nye and Roscoe. The postcards also identified a contact to address questions and to be added to the mailing list.

Newsletter No. 1 - Approximately 250 newsletters were sent to individuals listed on the project mailing list. The project mailing list includes the following groups: project team members, newspapers, local government and public officials, landowners, federal and state agencies, cooperating agencies, past policy advisory committee members, and public participants in the earlier project activities (i.e., EA).

Newspaper - An advertisement announcing the public meetings was published in the *Stillwater County News* on October 21, 1998

Public Meetings

Two public meetings were held for the scoping phase. The November 4, 1998 meeting was held in Absarokee at the Absarokee Elementary School. Approximately 70 people attended this meeting.

The November 5, 1998 meeting was held in Columbus at the Little Metra Building at the Fairgrounds. Approximately 35 people attended this meeting.

The format for these public meetings was the same for both. The meeting was from 6:30 pm to 8:30 pm with a one-half hour presentation and an open house for the remainder of the meeting. Handouts provided at the meeting included a two-sided project information sheet (attached), comment sheets, comment postcards, newsletter, and Title VI and ROW information from MDT.

For the open house, there were five manned stations: greeting station, purpose and need, alternatives, existing corridor alignment and impacts, and public involvement/comment station. Material presented included a location map with accident and traffic data, purpose and need statement, project schedule, aerial with a corridor centerline and alternatives for Nellie's Corner, alternatives list, design objectives, environmental issues list, roadway standard description, and example cross-sections. Public comment opportunities included comment sheets, comment postcards, tape recorder, and one-on-one discussions with project team members.

Public Comments

As of December 9, 1998, thirty-four responses were received: comment cards (12), comment sheets (19), letters (2), and E-mail (1). A summary of these comments and the comments recorded at the public meetings is presented in the attached table.

MONTANA P-78
ABSAROKEE TO COLUMBUS
SUMMARY OF ISSUES FROM NOVEMBER 1998 PUBLIC MEETINGS

ISSUE	NUMBER OF COMMENTS		PHASE OF ISSUE RESOLUTION				
			EIS PROCESS			DESIGN	CONSTRUCTION/ OPERATIONS
	Letter	Public Mtg	Completed – Stated in 'Purpose & Need'	Absarokee Meetings 1/99 – 3/99	Alternatives Analysis 12/98 – 3/99		
Support Improving Roadway							
Upgrading, straightening, and widening highway within existing corridor.	10	5			X		
– Safety cited as important concern	10		X				
– Need to accommodate future traffic increases	3		X				
– Want bike/jog path along P-78	1				X		
– Need to reconstruct and not just fix highway	1				X		
Nellie's Corner							
1. Support Option A	4				X		
2. Support Option B	1	1			X		
3. Support Option C	2	2			X		
4. Support route over the hill	1	2			X		
5. At Nellie's Corner, an additional option exists between Option A and C at lowest place to come through between the alignments (Jim Edwards). Would address shading and sharp curve.		1			X		
6. Look at new river crossing at different location to avoid Nellie's Corner altogether		1			X		
7. Stay on flats at Nellie's Corner		1			X		
Absarokee Area Comments							
1. Absarokee Water and Sewer District wants to coordinate with MDT to rebuild water system in conjunction with P-78. May require removal of all asphalt rather than just milling and overlay. Any funding available? Timing issues?		1		X			
2. Bypass main street in Absarokee; move road to east side. Right-of-way is limited in town so it can't be improved or widened.	1	2		X			

ISSUE	NUMBER OF COMMENTS		PHASE OF ISSUE RESOLUTION				
			EIS PROCESS			DESIGN	CONSTRUCTION/ OPERATIONS
	Letter	Public Mtg	Completed – Stated in 'Purpose & Need'	Absarokee Meetings 1/99 – 3/99	Alternatives Analysis 12/98 – 3/99		
Absarokee Area Comments (Continued)							
3. Route the highway straight through from milepost/sta (?) 50 to 65. Moving buildings and water/sewer lines is highly questionable.	1			X			
4. Avoid sharp left as road enters Absarokee; provide slow left starting 0.5 miles outside of town.	1			X			
5. Provide stoplight at IGA	1			X			
6. Appropriate speed limits and lighting needed for safety of students between Absarokee elementary and high school	1			X			
7. Put sidewalk along back of school down Montana Ave.		1		X			
8. Want bike/jog path in vicinity of Absarokee	2			X			
Right-of-Way							
1. Landowners willing to allow taking for state right-of-way	1					X	
2. Landowners with concerns about the right-of-way and road design; want to negotiate and discuss concerns with MDT.	8	8 (some provided letters)				X	
Other Issues							
1. Want passing lanes within existing right-of-ways	3	1			X		
2. Favor realignment of road		2			X		
3. New alignment would improve safety, but too expensive		1			X		
4. Look at alternative alignment up Countryman Creek to north end of Absarokee. Avoid irrigation problems.		1			X		
5. Expressed frustration with the length of the highway planning process and how long it will be until construction begins.	5	2					
6. Concerns about intersection of P-78 and 421. Stop sign or will road be squared up on 421 to meet P-78?	1	1				X	

ISSUE	NUMBER OF COMMENTS		PHASE OF ISSUE RESOLUTION				
			EIS PROCESS			DESIGN	CONSTRUCTION/ OPERATIONS
	Letter	Public Mtg	Completed – Stated in 'Purpose & Need'	Absarokee Meetings 1/99 – 3/99	Alternatives Analysis 12/98 – 3/99		
Other Issues (Continued)							
7. Road up at ditch line is very expensive due to all irrigation of good land	1				X		
8. Move highway into hillside at milepost or sta 87	2	1			X	X	
9. Need speed limit after road is improved; include secondary roads. Some concerns that safety will not be improved because of increased speeds.	1	3				X	
10. Other Safety Issues							
– No place to pass		1	X			X	
– No recovery area		1	X			X	
– Need to identify turnouts for slow traffic		1	X			X	
– Truck traffic crosses centerline		1	X				
– Sand earlier in day		1					X
– Better snow removal during snowstorms	1						X
11. Need to redo road section after Fishtail intersection		1					
12. Need to mow complete right-of-way (to fence) – not just 5 feet		1					X
13. Eliminate shading that causes black ice	1	1				X	
14. Straighten out road at milepost 39 – one of worst accident locations		1				X	
15. Eliminate curves so vehicles can pass		1				X	
16. Concerns about raising grade above existing highway (approach problems and sidewalk issues anticipated).	2					X	
17. Grade beyond right-of-way to create flatter areas for fence construction		1				X	
18. Be flexible in application of design standards		1				X	
19. Wetland concerns along highway corridor	1				X		
20. Raise height of existing fence, add additional fence, and clear additional brush to eliminate deer crossings and to improve visibility of deer for drivers.	1	4				X	

ISSUE	NUMBER OF COMMENTS		PHASE OF ISSUE RESOLUTION				
			EIS PROCESS			DESIGN	CONSTRUCTION/ OPERATIONS
	Letter	Public Mtg	Completed – Stated in 'Purpose & Need'	Absarokee Meetings 1/99 – 3/99	Alternatives Analysis 12/98 – 3/99		
Other Issues (Continued)							
21. Potentially historic house between mileposts 39 and 40. Yellow two-story called Halfway House. May have been Sears mail order house of local significance. Possibly move house back.		1			X		
22. Red barn across from yellow two-story may also be historically significant.		1			X		

MONTANA P-78
ABSAROKEE TO COLUMBUS
SPECIFIC LANDOWNER CONCERNS
FROM NOVEMBER 1998 PUBLIC MEETINGS

1. **F.R. (Bud) and Shirley Hastings.** Concerns about state right-of-way taking part of barn, road, well, and trees. Their property includes parcels 12 and 13 on page 8 of the old right-of-way plans. Want MDT to contact them.

2. **Letha Perry** owns parcel 20, 1 mile south of Absarokee. It is a business property that she is concerned about losing. She would like to minimize her losses by keeping the highway centerline on its present alignment. Also needs access for trailers from Lover's Lane up onto highway. She wants to be contacted by MDT.

3. **Richard Brickley's** property is located at Milepost 87. Last proposed design could affect 50% of his property and destroy a water well. He suggests moving the highway into the existing hill to protect his property and building a retaining wall to protect the slope.

4. **Fred Gauthier**. Wants to keep highway higher towards hill to avoid his property, to prevent excessive use of fill, and to avoid moving the ditch and his neighbor's well.

5. **Richard Ostrum's** property is at the junction of Highway 78 and 419 (the Fishtail-Roscoe intersection). He has concerns about entrance to ranch, their livestock crossing the road, irrigation wastewater from present Agency ditch, proposed access for convenience store and gas station, and certain locations along the 130' right-of-way. Wants to negotiate/talk with MDOT.

6. **John and Marily Simmons** are owners of the Dew Drop Inn on the north edge of Absarokee. Their business is open from approximately April 15 through September 25. Can't afford to lose any of their present parking lot or lot access during construction phase. Parking is important to their business (used by approx. 300 to 350 cars on weekends).

7. **Eric and Sheri Fallang** have property at milepost 97 by Riverside Inn Bridge. Want to move the highway into the hillside as far as possible to preserve the horse pasture and their exit. Do not want a frontage road for exit. Concerned about loss of property and diminished property values. Want to negotiate and talk with MDT.

8. **Stacy Vorhes**. Does not want highway moved to west at F & H Mine Supply. Wants to be negotiate/talk with MDT.

9. **Betty Thompson**. Lives in the Riverside Inn. Concerned about removal of the "old" bridge (bought by Lincoln Powers) and the piers holding up the bridge. How will her property be protected from flooding, fishermen access, and potential lack of bridge maintenance? What about grade from Stillwater Bridge to P-78? What about her access to water in a nearby ditch (Ken Mulherin)? New overnight cabin will be in right-of-way.

10. **Millers**. Move road into hillside to miss irrigation ditch. Would eliminate two bad corners.

11. **Pastor Johnson.** Church property located south of Absarokee. Church has an aboveground septic system with a mound that runs the depth of the property. Can't access back of property to the south from parking lot due to mound (well south of mound on west side of property). Not enough room for two-way road. Would like additional access from P-78. Concerned about impacts to well, too.

12. **Dick Heard** (sta 230). Concerned about safety issues because he has seen number of accidents/deaths. Wants road improved and will willingly negotiate.

13. **McKnight** (sta 165). Concerned about losing property and impacts to ranching operation. Want to move highway into curve out of dryland field. Put road on hill.

14. **Pat Holman** (sta 262). Old, deep well on north side of road. Doesn't want to lose well because of sulphur in other wells. Wants traffic slowed down near her lumberyard in Columbus. Traffic is bad at the railroad crossing. Favors option C – get traffic off the existing route.

15. **Sandra Peck**. Concerned about approach at Beaver Creek Road and at Stillwater Bridge. Water line from Ken Mulherin Ditch from Betty Thompson's turnout.

16. **Art Woltermann.** Property at intersection of 78 and 421. Would like to know if his land is affected particularly by a wetland that might be placed on his land. Also wants to know what will happen at intersection.

17. **Mike and Lorrie Koski.** Property west of P-78 at Shane Creek. Suggested exploring option to put new bridge in the same location as existing bridge; and construct a temporary culvert for the crossing during the construction period.

From meeting notes (no landowner names provided; may be repetition of above landowner concerns)

1. Land owner @ (SW quad) intersection of 78 and 419 (± 12+00 LT)
    - convenience store; planning
    - would like access from both 78 and 419

2. Land owner @ Lover's Lane (N.W. quad) (±40+00 LT)
    - veterinarian
    - minimize right-of-way taking
    - extend landing length on approach
    - reduce steepness of approach

3. Land owner @ livestock shipping (Miller) (± 97 + 00 LT). Would like to see less impact on his parcel.

4. Landowner along Nichols Ditch (± 135+00 LT). Expressed concern over pipeline that was previously proposed. Concerned about possible maintenance issues.

5. Land owner near Whitebird area (± 160+00 RT)
    - loop road needed in winter; other is too steep
    - new barn and well in proposed right-of-way

Montana P-78
Absarokee to Columbus
Summary of April 26 and 27, 1999 Public Meetings

Public Meeting Notification

Newsletter No. 2 – The second project newsletter was mailed to over 250 recipients on the project mailing list on March 9, 1999. The project mailing list includes project team members, newspapers, local government and public officials, landowners, federal and state agencies, cooperating agencies, and other interested parties.

Postcard Notification – A postcard reminder of the public meeting(s) was mailed to the full project mailing list on April 6, 1999. Additional copies were also mailed to area businesses for distribution from their customer service counters.

Newspaper –

Public Meetings

Two public meetings were held to discuss the Analysis of Alternatives conducted to date. The first meeting was held at the Absarokee Elementary School on April 26, 1999. Approximately 36 people attended this meeting.

The second was held at the Little Metra Building in Columbus on April 27, 1999. Approximately 27 people attended this meeting.

The format for these meetings was the same for both, and very similar to the ones conducted in November 1998. The meeting was scheduled from 6:30 p.m. to 8:30 p.m. Bruce Barrett, District Administrator, began a formal presentation at 7:00 p.m., then held an open forum for questions and answers. Attendees were then free to review the presentation materials and talk one-on-one with MDT and consultant staff.

The open house was organized into six stations. They were as follows:

Greeting Station – Each attendee was asked to sign in, and was provided with project handouts including a two-sided project information sheet, comment sheets and postcards, extra newsletters, and Title VI and R-o-W information from MDT.

Station 1 – Purpose and Need, and Alternatives Evaluation – Presentation boards included a description of the Purpose & Need and Design Objectives for the proposed project, and an Alternatives Analysis evaluation table. This evaluation table indicated that the No-Build alternative, and the Upgrade Existing Corridor alternative would be forwarded for detailed evaluation. An additional board at this station summarized general comments received during project scoping which aided in the development and screening of alternatives.

Station 2 – Corridor Overview – Presentation boards included a corridor map with details of Nellie's Corner and various cross-sections illustrated along the corridor. This station also included aerial mapping of the entire corridor with the proposed centerline illustrated.

Station 3 – Nellie's Corner Alignment Options – A large-scale aerial with the five potential alignment alternatives was presented. Another board presented previous comments received regarding the Nellie's Corner segment of the project. An evaluation matrix comparing the five alternatives presented information available to date on cost, safety, right-of-way/relocation, access impacts and irrigation impacts. Topics such as farm and ranch operations, aesthetics and environmental impacts were ??? identified, but no information was provided. One of the purposes of this meeting was to obtain information from the community on these topics.

Station 4 – Absarokee Re-construction Options – Two potential cross sections were presented along with a board with previous public comments regarding improvements through the town of Absarokee.

Station 5 – Public Involvement – An easel pad, comment sheets and cards, and a tape recorder were available for attendees to leave comments.

Public Comments

MDT received about a dozen written comments from these meetings and took another 10 to 12 questions during the Q&A portion of the meetings. MDT and consultant staff also received several more site-specific comments, questions, and concerns during the open house portion of the meetings.

Much like the Scoping Meetings, the majority of comments revolved around the urgency of the need for improvements to the existing roadway.

- The longer you wait, the more it will cost. Get the project done!
- Get it done before it costs more lives.
- What is the time frame for right-of-way?
- Areas identified with farm machinery on the road are: a) from Yellowstone River bridge to Whitebird fishing access, and b) Beartooth Ranch. Millers move livestock on the road at times.
- Need to extend the culverts for farm machinery to pull over.
- Difficult to pass farm equipment because road is narrow and the equipment has a 12-14 foot head.
- Have you considered turnouts for farm machinery?
- Suggest advisory signs warning of farm machinery.
- Can shading (which causes icing) between Miller's Corner and Stillwater River Bridge be alleviated?
- Concerned about water drainage and what happens if drainage ditches above house break.

- Need more detailed design on ditches before right-of-way can be negotiated.
- Are you going to fix the north bridge abutment at the Yellowstone River Bridge?
- Speed would impact movement of farm machinery – especially during hay season.
- Control speed along roadway.
- Do you have the results of the recent traffic count?
- Has traffic reduced with the mine shuttle/carpooling? Would this affect the project design?
- What happens next in the process?

Nellie's Corner Alignment Options Comments:

For reference, the Nellie's Corner Alignment alternatives are described as A-Knob; B-Flats, C-Hill, D-Saddle, and E-New Bridge Crossing.

General Comments

- Have you looked at traffic impacts with Alternative E?
- Would like to see speed limit of 45 mph north of Nellie's Corner.
- Shane Ridge and the Knob area may be an Indian burial ground.
- Road segment between Nellie's Corner and the Yellowstone bridge is a safety concern. There are a lot of accidents in this location – dogs and horses have been hit, the school bus was hit when it was stopped. People bike and job on this section of road. Suggest reducing speed.
- Option B will still be susceptible to flooding from ice jams.
- Children at Nellie's Corner cannot ride school bus because of the danger of stopping on the curve. A wider, faster curve (Option B) will not fix this issue.
- Three written comments expressed support for either Options A or D, two others expressed support individually for Option A or D.
- Go up and around the hill – plenty of material to fill and grade new road.
- One expressed support for Option C – noting that modern machinery to cut and fill this alignment makes this feasible.
- Option E should be looked into further for long-range planning as best plan. Providing landowner approval.
- Area between Nellie's Corner and the Yellowstone River bridge is developing, so reduce speed in this location and make it a residential street.
- Currently, P-78 provides access to fields on both sides of roadway. Field access needs to be maintained.
- Redesign Alternative D so there is less fill on the southern end of the alignments.
- When the southern approach to the Yellowstone River bridge was built, there was a conduit put in under the highway to drain the Rader and Blaylock properties. The property owner believes that the drain was put in too high and has caused the water to back up creating a swamp and flooding of basements in area. Consider lowering conduit in the redesign.

Specific Comments from Property Owners

- Spring on Blaylock property is used for drinking and household use. Important to maintain spring because wells are not useable due to sulfur content.
- Near the knob on Shane Ridge there is a spring used by Nellie Matavich for drinking water. Prefer Alternatives A, C or D.
- One resident stated that Alternative B would impact irrigated fields that he leases. Alternative A would be preferable for his ranch operations.
- Major landowner along corridor recognizes that roadway improvements are needed. Prefers Alternative A and C because Alternative B would impact farming operations.
- The property owner near the bridge identified their old homestead between the alignment Alternative C and D. They are planning to build on their site and therefore prefer Alternatives A, B or C because they would only lose the front of their site. They do not prefer Alternative D because the alignment is through the middle of the property and therefore they would not be able to build on the site as planned.

Questions and comments regarding the Absarokee section were:

- What is the timing for improvements through Absarokee?
- Plans for Absarokee are looking good.
- Need new sidewalks through Absarokee
- Woodland Ave resident on Southeast end of town concerned about loss of trees on property line.
- Like sidewalk from town connecting to high school.

Other site-specific comments were received by various MDT and consultant staff. Those individual comments will be addressed during the design process and right-of-way negotiations.

Montana P-78
Absarokee to Columbus
Absarokee Public Meeting Minutes
February 17, 2000

The public meeting was held at the Stillwater Senior Citizens Center, in Absarokee, on Thursday, February 17, 2000 and was attended by 37 people.

The purpose of this public meeting was to present information on the new alternatives, and receive input from the public on these alternatives which include the following:

- Climbing Lane North of Absarokee
- Climbing Lane South of Absarokee
- 10.8 meter (36 feet) Paved Top Alternative (includes 6-foot shoulders)

The information sheet provided at the public meeting, and sheets with the analysis of the additional impacts associated with these alternatives are attached. The questions and comments received after the formal presentation are attached.

The main topics or issues raised at the public meeting are as follows:

Climbing Lane North of Absarokee – all attendees suggested eliminating this climbing lane alternative. The main concerns were that the grade did not warrant a climbing lane. The beneficial impacts were not sufficient to justify the additional right-of-way required. There was a concern that people drive too fast entering Absarokee and the location of this passing lane would exacerbate the problem.

Climbing Lane South of Absarokee – all attendees suggested eliminating this climbing lane alternative. The beneficial impacts were not sufficient to justify the additional right-of-way required. Although the climbing lane is located south of the High School, there was concern that it may encourage higher speeds in this area. The community would prefer to reduce the speed near the High School. Residents adjacent to the existing hill location report that there do not appear to be problems with trucks climbing the hill and impeding traffic. The existing grade is steeper than the planned future grade.

4 ft. vs. 6 ft. Shoulder Alternative – Only seven of the thirty-seven attendees were in favor of the wider shoulder width. Those in favor of the narrower shoulder width believed that the additional cost and right-of-way did not outweigh the operational and safety benefits of a wider shoulder. Many were satisfied with the narrower shoulder because the side slopes would be improved.

General Comments

- Want project built as soon as possible.
- Suggested providing turn lanes at major intersections: Fishtail Road (419), the Riverside Inn Bridge and Countryman's Creek Road.

Montana P-78
Absarokee to Columbus
Public Meeting
February 17, 2000

QUESTIONS AND ANSWERS

- Are climbing lanes necessary?
- Climbing lane provides no advantage. (several comments)
- Climbing lane would alleviate bunched traffic.
- What is the cost of the climbing lane?
- Trucks aren't the slower traffic so a climbing lane for trucks is not needed.
- Passing lane shouldn't be located near town because people will be speeding up. Also do not want to speed up near schools. This will cause problems in Absarokee.
- Adding climbing lane will require more land. Not steep enough to warrant climbing lane.
- Road will be straighter so trucks will now be able to go faster the climbing lane may not be needed.
- Does the north climbing lane facilitate or detract from access from Riverside Inn Bridge?
- Concern that north climbing lane will not be safe it there is access to Riverside Inn Bridge.
- Utility conflict at Beaver Creek Road for the south climbing lane.
- South climbing lane area will have less of a grade than it does now, so the climbing lane is not needed.
- Consider four-way stop on Grove Street. Dangerous intersection, buildings restrict sight, as do parked vehicles. Consider using mirrors (3 comments).
- Columbus - At Pike & Railroad what is being done?
- What is the impact of additional traffic at the Yellowstone River bridge in Columbus? There will be more traffic in Columbus which will come through Absarokee.
- Sight distance at access to Riverside Inn is now poor. Should add acceleration/deceleration turning lane on P-78 at the intersection.
- The issue isn't climbing lanes. Turn lanes are needed at:
    - Fishtail Road (419) intersection (this is a safety issue),
    - Riverside Inn (this is a safety issue), and
    - Countryman's Creek Road - Left turn (traffic backs up).
- Build Road! Many people have died, don't look at any other alternatives. (several comments)
- When would construction begin? 2002, but could not undertake ditch relocations until fall of 2002.
- What is the duration? Do not want road torn up in winter.
- Will corridor improvement be undertaken as one project? Don't tear up the entire corridor at one time.
- What is speed limit/design? If it is 60+ then it is a safety issue.
- Would like a 60-mph speed limit. A speed study will be undertaken. Why was speed limit changed several times? No enforcement!
- What is a cost estimate of the project? What has been spent to date? The public believes that he estimate is conservative.
- Will Main Street parking be impacted? Will storefronts be impacted?
- Prefer a 4-foot shoulder. The benefits are not worth cost or additional right-of-way. (several comments)
- No one is in favor or climbing lanes. Only a few (7) were in favor of a wider shoulder. Flatter slopes will provide a similar benefit as adding a wider shoulders.

Montana P-78
Absarokee to Columbus
Public Meeting
February 17, 2000

SUMMARY OF WRITTEN COMMENTS

The following items summarize the six written comments submitted during the public meeting held on February 17, 2000 at the Senior Center in Absarokee from 6:30 p.m. – 8:30 p.m.

- Four comments were not in favor of the 6 feet wide shoulders. Of these four – three indicated that 32 feet is wide enough.

- One comment was in favor of considering the 6 feet wide shoulders for the entire corridor.

- Three comments opposed the climbing lanes and one comment advocated the south climbing lane only.

- Regarding the climbing lanes, one opposition to climbing lanes was based on poor design and the belief it would create a problem in Absarokee, another questioned the need based on the number of trucks, and one indicated they were not warranted. Two other comments flatly stated no to the climbing lanes.

- One person suggested that the placement of turning lanes at busy county roads would increase safety.

- One comment praised the design team for their patience and asked the rhetorical question if the community will ever be pleased. This person also wrote "They all love the new Fishtail Road – Right? Ha!"

February 22, 2000

P-78 Absarokee to Columbus EIS
Summary of Absarokee Small Group Meeting on January 19, 1999

Attendees: See Attached Sign-In Sheet

The purpose of the meeting was to discuss alternatives within Absarokee for the P-78 project and to share information on the improvements planned by the Absarokee Water District.

Bruce Barrett, District Administrator for MDT District 5 provided background information on alternatives for the Absarokee area. Previous project efforts from several years ago had identified a mill and overlay alternative through Absarokee. Full reconstruction was proposed from the Dew Drop Inn going north and from Willow Street going the south; a short section of overlay and widen was proposed on the north end of town to the Dew Drop Inn. A mill and overlay through town was suggested at that time due to time delays and costs that may be associated with issues such as historic structures, sidewalk reconstruction, and storm drainage improvements. In recent years an overlay was provided for maintenance of this section of P-78 through Absarokee. As part of the current environmental (EIS) process, MDT is reconsidering past alternatives and developing new alternatives through Absarokee.

Scott Evans and Kathryn Fjare of the Absarokee Water District provided information on the water project. Absarokee has had a water district for three years, prior to that time it was an association. The original system was built in the 1940's with steel pipe and due to the existing condition of the system, the District is losing 44% of the water. The District's project is to replace the mainlines and fire hydrants for the entire system. The cost is estimated at $5 million.

The following are issues discussed pertaining to the Absarokee section of P-78.

1. Schedule of P-78 and Utility Improvements - The Absarokee Water District would like to coordinate the schedule of the District's water improvements and MDT's roadway improvements.

Roadway Improvements Schedule: Estimated Let Date of April 2001; 12 month period in which improvements would be undertaken.

Water Improvements Schedule: Preliminary engineering is complete, now obtaining costs estimates for undertaking the improvements in phases (ie., Main Street, east-side, and west-side). To qualify for DNRC grants, the District will need to vote in June to raise rates.

2. Coordination on Absarokee Improvements - The options that were identified and discussed among participants included the following concepts.

(a) Absarokee Water District could undertake the water improvements and lay the gravel, MDT could then grade and pave the roadway to the existing condition without providing storm drain improvements. This option could be undertaken under the P-78 project.

(b) Nominate the Absarokee section for a full reconstruction project which would include improvements such as storm drainage and sidewalks. This option would take several years for environmental compliance, design and funding.

3. Sidewalks - Discussed the need for a sidewalk between the Elementary and High School and other locations such as extending to Church Street. Park City's use of CTEP funds to provide sidewalk improvements was discussed. Three people are in motorized wheelchairs and must use the street because the sidewalks are lacking or are not ADA compliant.

4. School Issues - Mike Mullowney, Absarokee Schools, identified several issues for consideration: fencing through the school area; traffic light at the grade school; reduced speed in school area; the crosswalk is not visible when there is snow, so people don't realize it is there; minor traffic incidents at high school as vehicles turn into parking lot and the traffic behind is traveling too fast. John Simmons mentioned that the ditch in front of the school overflows, which requires the students to walk in the street.

5. Grove and Woodard Intersection - Consider a traffic signal because of traffic volume and poor visibility. The removal of parking at the corner has helped visibility but it is difficult to enforce parking restrictions.

6. Presentation of Absarokee Alternatives - attendees agreed that it would be beneficial to have a second small meeting to address some of the specific issues identified above. It was suggested that this small meeting occur before the public meeting so that the Water District and MDT could jointly put forward a coordinated approach to the residents of Absarokee.

MDT will investigate the following issues for the next meeting.

1. Can the water utility work be included in MDT's construction contract with Absarokee covering the costs associated with the utility work?

Absarokee Meeting Sign-In

Name	
Debra Perkins-Smith	BRW
Karl Helvik	MDT-Helena
Scott Evans	
[illegible]	Stillwater Co. News
Cliff Bare	Commissioner
Frances Abney	President, Senior Center
Kathryn L. Fjare	Abs. Water Dist.
Mike Mullarkey	Absarokee Schools
Bruce Barrett	MDT-Billings
B.D. McCann	MDT Billings
John A. Shaff	MSE-HKM - Billings
John P. Simmons	Abs.
Sandra M. Peck	Absarokee
Gary Neville	MDT

P-78 Absarokee to Columbus EIS
Summary of Absarokee Small Group Meeting on February 10, 1999

Attendees: See Attached Sign-In Sheet

The purpose of the meeting was to discuss alternatives within Absarokee for the P-78 project and to address questions and issues identified at the January 19, 1999 meeting.

Response to Issues from January 19, 1999 Meeting

At the previous meeting on January 19, 1999, several issues or questions were identified that affected the planning, implementation, and coordination of the Absarokee Water District projects and MDT's roadway improvements. Bruce Barrett, District Administrator for MDT District 5 investigated these issues and provided the group with this information. The issues are as follow.

1. Could the water district improvements be included in the MDT construction project, if the City paid the cost of the water improvements?

Yes, the water improvements could be included in MDT's project with the city paying the appropriate costs. However, if the City waited until there was a reconstruction project, MDT would pay a portion of the water upgrade costs for the affected portion of the roadway. For systems of 500 users or less, MDT would pay 100% of the upgrade cost.

2. After the Water District completes their work, can MDT build to gravel and pave without undue problems?

Yes, if the roadwork is only mill, minor shaping and minor paving with no major work.

3. Can the walkways be improved as part of the roadway project?

If sidewalks are identified as needed in the P-78 EIS, then the sidewalks must be constructed to MDT standards even if condemnation is required. It was suggested that some sidewalk improvements be undertaken using CTEP funds now and that other sidewalk improvements be addressed as part of a future reconstruction project in Absarokee.

4. Can CTEP funds be used for the sidewalk improvements?

Yes, if expenditure of CTEP funds is approved by the County Commissioners, and if the Town or County will provide the match. The County currently has $6,000 in unobligated funds and will be receiving $28,000 per year.

5. What is the prospect and time frame of advancing a reconstruction project through the town of Absarokee?

The project could be nominated this spring (1999) and would require approximately one year to advance through the public involvement and Transportation Commission approval process. Actual programming and the assignment of the project to a consultant would begin in the spring or summer of 2000. Project development time would probably require 4 to 6 years. If the funding is then available (under the 2005 reauthorization bill), the project could go to construction in 2005.

6. Can the 25 mph speed zone be moved south to the southern edge of the school?

A speed zone study was undertaken in 1991. The results of this study indicated that higher speed limits were warranted. The County Commissioners under Resoulution 22 were able to request a reduced speed limit. The County Commissioners could request another speed study; but it is likely that the results will be the same as the 1991 study.

Bruce Barrett suggested that MDT could assess the use of bouncing ball signs on the speed limit signs near the school. Mike Mullowney, Absarokee Schools, requested that this suggested safety improvement be pursued by MDT.

7. Cliff Bare had asked if any planning funds would be available to help study some of the issues and improvements?

If a roadway reconstruction project through town is nominated and approved then all development costs will be borne by the MDT project.

After these questions were answered from the January 19, 1999 meeting. Bruce Barrett suggested that the group consider a new project within the town of Absarokee. He suggested that this new project should be a full reconstruction of the roadway. A full reconstruction project would include roadway improvements, water main replacements, sidewalks, and storm drainage. It will take several years to plan, design and fund a full reconstruction projection project. To serve immediate needs, sidewalk improvements could be proposed as a CTEP project. These new projects would be different than the projects identified for the P-78 project. As part of the P-78 project, maintenance through town would include chip and sealing, and striping.

CTEP Funding for Sidewalks

Cliff Bare, County Commissioner, stated that the County is now accepting applications for CTEP projects.

Marilyn Simmons, representing the Civic Club, stated that the Club would support using some of its funds for a sidewalk between Church and Willow Streets. These funds could be used as a local match for a CTEP project. Marilyns Simmon requested that Scott Evans and Kathyrn Fjare of the Absarokee Water District attend the next Civic Club meeting to support the project.

MDT will provide the town with information on ROW and MDT's paved standard for a sidewalk.

Nomination of a Full Reconstruction Project in Absarokee

Attendees supported the nomination of a full reconstruction project in Absarokee and requested that Bruce Barrett proceed with this nomination.

Attendees agreed that this project concept should be presented at the next public meeting to determine whether there is community support. If there is no community support for this project, then the nomination could be withdrawn at that time.

Kathyrn Fjare, Absarokee Water District, was concerned that the in town section of P-78 would not be completed if it were a separate project because there may not be sufficient funding in the future. Bruce Barrett stated that he could not guarantee future funding levels; but that he is committed to this project. He also recently nominated another project on P-78, specifically the section from FAS 419 to Roscoe.

To nominate the full reconstruction project, MDT will need the cost estimates for the water improvements. Scott Evans stated that Doug Whitney of MSE-HKM will have the cost information in March.

P-78 Absarokee Meeting
February 10, 1999

Name		Phone
MAURA PROCTER MT DEPT OF TRANS		657 0238
BRENT McCANN	MDT	657-0236
KARL M. HELVIK	MDT	444-7224
JOHN A. SHOFF	MSE-HKM	656-6399
Fred Bente	MDT	444-7634
GARY NEVILLE	MDT-BLGS.	657-0232
John P. Simmons	Abs.	Shop 328-4311 Shop.
Marilyn Simmons	Abs	328 4163
Debra Perkins-Smith, BRW		303 293-8080
JODY C BICKEL	Still. Co. news	322-5212
Scott EVANS	Abs. WATER	328-4043
Kathryn Fjare	Abs. Water	328-6487
Bruce Barrett	MDT - Billings	657-0210

P-78 Absarokee to Columbus EIS
Summary of Small Group Meeting for Riverside Inn Area on April 20, 1999

Attendees: See Attached Sign-In Sheet

The purpose of the meeting was to discuss alternatives for P-78 near the Riverside Inn area (sta 85 - sta 90) with adjacent property owners. During the public information meetings in November 1998, this area was identified as an area of concern by the public and adjacent residents. The concerns expressed included inadequate sight distance under existing conditions, irrigation relocation, access, the amount of right of way to be acquired, and the remaining parcel sizes.

Bruce Barrett, District Administrator for MDT District 5 opened the meeting. Attendees were provided with plan sets of two alternatives (Alternative A and B). These plan sets were color coded to show the existing roadway, parcel boundaries, construction limits and access. P-78 in this location is between a steep hillside on the south and home sites along the Stillwater River on the north. On the north side of the roadway is the Roadhouse Ditch and on the south side is the Kem-Mulherin Ditch.

John Shoff of MSE-HKM, the design consultant for the P-78 project, described Alternatives A and B.

Alternative A

- Avoids major cut section
- Relocates sections of the Roadhouse Ditch on the north
- Modifies access to parcels on north to a joint use approach
- Parcels on north are small, a significant portion of the remaining land will be use for irrigation relocation and approach modifications

Alternative B

- Alignment is shifted to south into hillside to reduce impacts on residential parcels to the north
- Relocates sections of the Kem-Muherin Ditch on the south
- Requires 8-meter high retaining wall in the hillside
- Modifies access to parcels on north to a joint use approach, which could be constructed mostly within the existing right of way and minimize impacts to the residential parcels

The residents and property owners attending the meeting agreed that they all preferred Alternative B because it would minimize impacts to adjacent residents. John O. Miller, the property owner on the south, was not concerned about the cut in the hillside on his property because it was not useable land. He also requested that the area not be revegetated.

Other issues or information identified at this meeting included the following:

1. There may be several unmarked graves on top of the hill.
2. The Kem-Mulherin has more leakage than the Roadhouse Ditch; therefore placing the Kem-Mulherin in a box culvert may be an improvement.
3. There is a syphon between the Kem-Mulherin and Roadhouse at approximately Station 89.
4. There was concern that Alternative B may be more expensive and therefore may not be proposed by MDT.
5. John Shoff, MSE-HKM, the design consultant will continue to work with the property owners on the irrigation relocation.

Betty Thompson, the only homeowner not in attendance at this meeting will be sent information on the alternatives.

The concensus of the property owners at the meeting was that Alternative B was the preferred option.

P-78 Meeting
April 20, 1999 - Absarokee

Name (Representing)	Phone #
Debra Perkins-Smith (BRW-Consultant)	303·293·8080
KARL M. HELVIK (MDT-HelenA)	(406) 444-7224
Fred Bente Consult Design MDT	406-444-763
BRENT McCANN M.D.T Billings	406-657-0226
Maura Procter MDT -Blgs	657-0238
GARY NEVILLE MDT-BLGS	406-657-0232
John O Miller	406-328-4131
Alice W Barrow	406-328-414
Dirk Buckley	406-656 383
David Brickley	(406) 245-2139
Bruce Barrett MDT-Blgs	(406) 657-0210
Sheri FALLANG	406-328-4098
JOHN A. SHOFF MSE-HKM	656·6399

SOURCES AND SUPPORTING DOCUMENTS

Absarokee Water and Sewer District

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